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Environmental Protection
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Final 2012 and Preliminary 2014 Effluent Guidelines Program Plans

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PART I: INTRODUCTION AND BACKGROUND

1. INTRODUCTION

This document presents the *Final 2012 Effluent Guidelines Program Plan* ("Final 2012 Plan") and the *Preliminary 2014 Effluent Guidelines Program Plan* ("Preliminary 2014 Plan"), both of which were prepared pursuant to Clean Water Act (CWA) section 304(m). It also provides a summary of EPA's review of effluent guidelines and pretreatment standards, consistent with CWA sections 301(d), 304(b), 304(g), and 304(m), and EPA's evaluation of indirect discharges without categorical pretreatment standards to identify potential new categories for pretreatment standards under CWA section 307(b). From these reviews, the Plans identify any new or existing industrial categories selected for effluent guidelines rulemakings, and provide a schedule for such rulemakings. In addition, the Plans present any new or existing categories selected for further review and analysis.

Both Plans are supported by EPA's 2012 Annual Review (U.S. EPA, 2014a), which builds on prior reviews, including EPA's 2011 Annual Review (U.S. EPA, 2012a), and includes additional hazard data sources and supporting analyses aimed at identifying new pollutants of concern and identifying wastewater discharges in industrial categories not currently regulated by effluent limitations guidelines and standards (ELGs). EPA's 2011 and 2012 Annual Review Reports are a part of the Annual Review record and can be found at *http://water.epa.gov/lawsregs/lawsguidance/cwa/304m/index.cfm.* The Preliminary 2014 Plan is also supported by the findings of EPA's 2013 Annual Review, which are presented as part of the Preliminary 2014 Plan.

This document is separated into three parts:

- **Introduction and Background.** This section provides an overview of the Final 2012 and Preliminary 2014 Plans. It also provides background on the CWA and the effluent guidelines program planning process and requirements.
- **Final 2012 Effluent Guidelines Program Plan.** The Final 2012 Plan presents the methodology for EPA's 2012 Annual Review, findings and follow-up to the 2011 Annual Review, and review and findings from additional data sources and new analyses conducted as part of EPA's 2012 Annual Review. The Final 2012 Plan also summarizes and incorporates stakeholder input and public comments received on the Preliminary 2012 Effluent Guidelines Program Plan and presents EPA's final decisions on actions proposed in the Preliminary 2012 Plan.
- **Preliminary 2014 Effluent Guidelines Program Plan.** The Preliminary 2014 Plan presents the results of EPA's 2013 Annual Review. It also presents EPA's new actions, investigations and proposed decisions, based primarily on the findings of the 2012 and 2013 Annual Reviews, and solicits public comment and input on those proposed actions.

2. BACKGROUND

This section explains how the Effluent Guidelines Program fits into EPA's National Water Program, describes the general and legal background of the Effluent Guidelines Program, and summarizes EPA's process for making effluent guidelines revision and development decisions (i.e., effluent guidelines planning).

2.1 The Clean Water Act and the Effluent Guidelines Program

The Clean Water Act (CWA) is based on the principle of cooperative federalism, with distinct roles for both EPA and the states, in which the goal is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. To that end, the Act is generally focused on two types of controls: (1) water-quality-based controls, based on water quality standards, and (2) technology-based controls, based on effluent limitations guidelines and standards.

The CWA gives states the primary responsibility for establishing, reviewing, and revising water quality standards. Water quality standards consist of designated uses for each water body (e.g., fishing, swimming, supporting aquatic life), criteria that protect the designated uses (numeric pollutant concentration limits and narrative criteria, for example, "no objectionable sediment deposits"), and an antidegradation policy. EPA develops recommended national criteria for many pollutants, pursuant to CWA section 304(a), which states may adopt or modify as appropriate to reflect local conditions.

EPA is responsible for developing technology-based effluent limitations guidelines and standards (ELGs), based on currently available technologies for controlling industrial wastewater discharges. Permitting authorities (states authorized to administer the National Pollutant Discharge Elimination System (NPDES) permit program, and EPA in the few states that are not authorized) then must incorporate these guidelines and standards into discharge permits as technology-based effluent limitations where applicable (U.S. EPA, 2010).

While technology-based effluent limitations in discharge permits are sometimes as stringent as, or more stringent than, necessary to meet water quality standards, the effluent guidelines program is not specifically designed to ensure that the discharges from each facility meet the water quality standards of its receiving water body. For this reason, the CWA also requires authorized states to establish water-quality-based effluent limitations, where necessary to meet water quality standards. Water-quality-based limits may require industrial facilities to meet requirements that are more stringent than those in a national effluent guideline regulation. In the overall context of the CWA, effluent guidelines must be viewed as one tool in the broader set of tools and authorities Congress provided to EPA and the states to restore and maintain the quality of the nation's waters.

The 1972 CWA marked a distinct change in Congress's efforts "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters" (see CWA section 101(a), 33 U.S.C. 1251(a)). Before 1972, the CWA focused principally on water quality standards. This approach was challenging, however, because it was very difficult to determine where a specific discharger, or combination of dischargers, was responsible for decreasing the water quality of its receiving stream.

The 1972 CWA directed EPA to promulgate effluent guidelines that reflect pollutant reductions that can be achieved by categories or subcategories of industrial point sources through the implementation of available treatment and prevention technologies. The effluent guidelines are based on specific technologies (including process changes) that EPA identifies as meeting the statutorily prescribed level of control (see CWA sections 301(b)(2), 304(b), 306, 307(b), and 307(c)). Unlike other CWA tools, effluent guidelines are national in scope and establish pollution-control obligations for all facilities that discharge wastewater within an industrial category or subcategory. In establishing these controls, under the direction of the statute, EPA assesses, for example, (1) the performance and availability of the best pollution-control technologies or pollution-prevention practices for an industrial category or subcategory as a whole; (2) the economic achievability of those technologies, which can include consideration of the affordability of achieving the reduction in pollutant discharge; (3) the cost of achieving effluent reductions; (4) non-water-quality environmental impacts (including energy requirements); and (5) such other factors as the EPA Administrator deems appropriate.

Creating a single national pollution-control requirement for each industrial category based on the best technology the industry can afford was seen by Congress as a way to reduce the potential creation of "pollution havens" and to set the nation's sights on eliminating the discharge of pollutants to waters of the U.S. Consequently, EPA's goal in establishing national effluent guidelines is to ensure that industrial facilities with similar characteristics, regardless of their location or the nature of their receiving water, will at a minimum meet similar effluent limitations representing the performance of the best pollution control technologies or pollution prevention practices.

In addition to establishing technology-based effluent limits, effluent guidelines provide the opportunity to promote pollution prevention and water conservation. This may be particularly important in controlling persistent, bioaccumulative, and toxic pollutants discharged in concentrations below analytic detection levels. Effluent guidelines and standards also control pollutant discharges from industrial facilities and cover discharges directly to surface water (direct discharges) and discharges to publicly owned treatment works (POTWs) (indirect discharges).

The Effluent Guidelines Program has helped reverse the water quality degradation that accompanied industrialization in this country. Permits developed using the technology-based industrial regulations are a critical element of the nation's clean water program and reduce the discharge of pollutants that have serious environmental impacts, including pollutants that:

- Kill or impair fish and other aquatic organisms;
- Cause human health problems through contaminated water, fish, or shellfish; and
- Degrade aquatic ecosystems.

EPA has promulgated effluent guidelines for 58 industrial categories (see Table 7-1 below, also all 58 industrial categories are described at http://water.epa.gov/scitech/wastetech/guide/industry.cfm); these regulations apply to between 35,000 and 45,000 facilities that discharge directly to the nation's waters, as well as another 12,000 facilities that discharge to POTWs. The regulations have prevented the discharge of more than 700 billion pounds of toxic pollutants each year.

2.2 Effluent Guidelines Review and Planning Process

In addition to establishing new regulations, the CWA requires EPA to review existing effluent guidelines annually. EPA reviews all point source categories subject to existing effluent guidelines and pretreatment standards to identify potential candidates for revision, consistent with CWA sections 304(b), 301(d), and 304(g). EPA also reviews industries consisting of direct-discharging facilities not currently subject to effluent guidelines to identify potential candidates for effluent guidelines rulemakings, pursuant to CWA section 304(m)(1)(B). Finally, EPA reviews industries consisting entirely or almost entirely of indirect-discharging facilities that are not currently subject to pretreatment standards to identify potential candidates for pretreatment standards development under CWA sections 307(b).

In the effluent guidelines planning process, EPA is guided by the following goals:

- Restore and maintain the chemical, physical, and biological integrity of the nation's waters; and
- Provide transparent decision-making and involve stakeholders early and often during the planning process.

EPA uses four major factors in prioritizing existing effluent guidelines or pretreatment standards for possible revision. These factors were developed in EPA's draft National Strategy, described at http://water.epa.gov/scitech/wastetech/guide/strategy/fs.cfm.

The first factor EPA considers is the amount and type of pollutants in an industrial category's discharge and the relative hazard posed by that discharge. Using this factor enables the Agency to prioritize rulemakings to achieve significant environmental and health benefits.

The second factor EPA considers is the performance and cost of applicable and demonstrated wastewater treatment technologies, process changes, or pollution prevention alternatives that could effectively reduce the concentrations of pollutants in the industrial category's wastewater and, consequently, reduce the hazard to human health or the environment associated with these pollutant discharges.

The third factor EPA considers is the affordability or economic achievability of the wastewater treatment technology, process change, or pollution prevention measures identified using the second factor. If the financial condition of the industry indicates that it would not be affordable to implement expensive and stringent new requirements, EPA might conclude a less stringent, less expensive approach to reduce pollutant loadings would better satisfy applicable statutory requirements.

The fourth factor EPA considers is an opportunity to eliminate inefficiencies or impediments to pollution prevention or technological innovation, or opportunities to promote innovative approaches such as water-quality trading, including within-plant trading. This factor might also prompt EPA, during annual reviews, to decide against revising an existing set of effluent guidelines or pretreatment standards where the pollutant source is already efficiently and effectively controlled by other regulatory or non-regulatory programs.

2.2.1 Annual Review Process

Beginning in 2011, EPA revised its annual review process to include an odd- and even-year annual-review cycle, which was reflected in the 2011 and 2012 Annual Reviews. This approach more cohesively and comprehensively addresses the factors laid out in EPA's draft National Strategy. In the odd-year reviews, EPA screens industrial dischargers through a toxicity ranking analysis (TRA) that identifies and ranks those categories whose pollutant discharges pose a substantial hazard to human health and the environment. For the TRA, EPA relies on discharge monitoring report (DMR) and Toxics Release Inventory (TRI) data to rank industrial discharge categories by toxic-weighted pound equivalents (TWPE) released. Figure 2-1details how EPA uses the TRA to identify existing ELGs that may warrant revision. Figure 2-2 shows how EPA addresses new categories that may warrant regulation, as identified from the TRA. See Section 3 of the Preliminary 2012 Plan for further details on EPA's odd-year annual review process and methodology (78 FR 48159).

In the even years, EPA reviews additional hazard data sources and conducts alternate analyses to enhance the identification of industrial categories for which new or revised ELGs may be appropriate, beyond those that traditionally rank high in the TRA. This is consistent with the Government Accountability Office's (GAO) recommendation that EPA's annual review approach include additional industrial hazard data sources to augment its screening-level review of discharges from industrial categories.[1] Furthermore, EPA recognizes the need to consider in the screening phase the availability of treatment technologies, process changes, or pollution-prevention practices that can reduce the identified hazards. Specifically, in its even-year reviews, EPA is targeting new data sources that will provide information on other considerations not previously captured as part of the TRA, including, but not limited to:

- Industrial process changes.
- Emerging contaminants of concern.
- Advances in treatment technologies and pollution prevention practices.
- Availability of new, more sensitive analytical methods.
- Other hazard data and information not captured through the TRA and/or suggested by stakeholders or from public comments.

Figure 2-3 illustrates the even-year review process. See Section 3 of this Final 2012 Plan for details on the methodology used specifically for EPA's 2012 Annual Review.

EPA also conducts a more detailed preliminary category review of those industrial discharge categories that rank highest in terms of TWPE (i.e., pose the greatest hazard to human health and the environment) in the TRA or are identified as warranting further review during the even-year analyses. If EPA determines that further review is appropriate for an industrial category, EPA may complete a preliminary or detailed study of the point source category (see

[1] GAO's recommendations for the review of additional hazard data sources were published in GAO's September 2012 report, *Water Pollution: EPA Has Improved Its Review of Effluent Guidelines but Could Benefit from More Information on Treatment Technologies*, available online at: http://www.gao.gov/assets/650/647992.pdf.

Section 2.2.1.1 and Section 2.2.1.2, respectively), which may eventually lead to a new or revised guideline.

2.2.1.1 Preliminary Category Reviews

For the industrial categories with the highest hazard potential identified in the TRA, or identified as a priority from any of the even-year review analyses, EPA may conduct a preliminary category review, particularly if it lacks sufficient data to determine whether regulatory action would be appropriate, as illustrated in Figure 2-4. EPA will complete preliminary category reviews as part of the odd- or even-year review cycle depending on the industrial categories warranting review at that time. In its preliminary category reviews EPA typically examines the following: (1) wastewater characteristics and pollutant sources, (2) the pollutants driving the toxic-weighted pollutant discharges, (3) availability of pollution prevention and treatment, (4) the geographic distribution of facilities in the industry, (5) any pollutant discharge trends within the industry, and (6) any relevant economic factors. First, EPA attempts to verify the toxicity ranking results and fill in data gaps. Next, EPA considers costs and performance of applicable and demonstrated technologies, process changes, or pollution-prevention alternatives that can effectively reduce the pollutants in the point source category's wastewater. Finally, and if appropriate based on the other findings, EPA considers the affordability or economic achievability of the technology, process change, or pollution prevention measure identified using the second factor. These assessments provide an additional level of quality assurance on the reported pollutant discharges and number of facilities that represent the majority of toxic-weighted pollutant discharge.

During a preliminary category review, EPA may consult data sources including, but not limited to: (1) the U.S. Economic Census, (2) TRI and DMR data, (3) trade associations and reporting facilities that can verify reported releases and facility categorization, (4) regulatory authorities (states and EPA regions) that can clarify how category facilities are permitted, (5) NPDES permits and their supporting fact sheets, (6) EPA effluent guidelines technical development documents, (7) relevant EPA preliminary data summaries or study reports, and (8) technical literature on pollutant sources and control technologies.

2.2.1.2 Preliminary and Detailed Studies

After conducting the preliminary category reviews, as shown in Figure 2-4, EPA may next conduct either a preliminary or detailed study of an industrial category. Typically these studies profile an industry category, gather information about the hazards posed in its wastewater discharges, gather information about availability and cost of treatment and pollution prevention technologies, assess economic achievability, and investigate other factors in order to determine if it would be appropriate to identify the category for possible effluent guidelines revision. During preliminary or detailed studies, EPA typically examines the factors and data sources listed above for preliminary category reviews. However, during a detailed study, EPA's examination of a point source category and available pollution prevention and treatment options is generally more rigorous than the analyses conducted during a preliminary category review or a preliminary study and may include primary data collection activities (such as industry questionnaires and wastewater sampling and analysis) to fill data gaps.

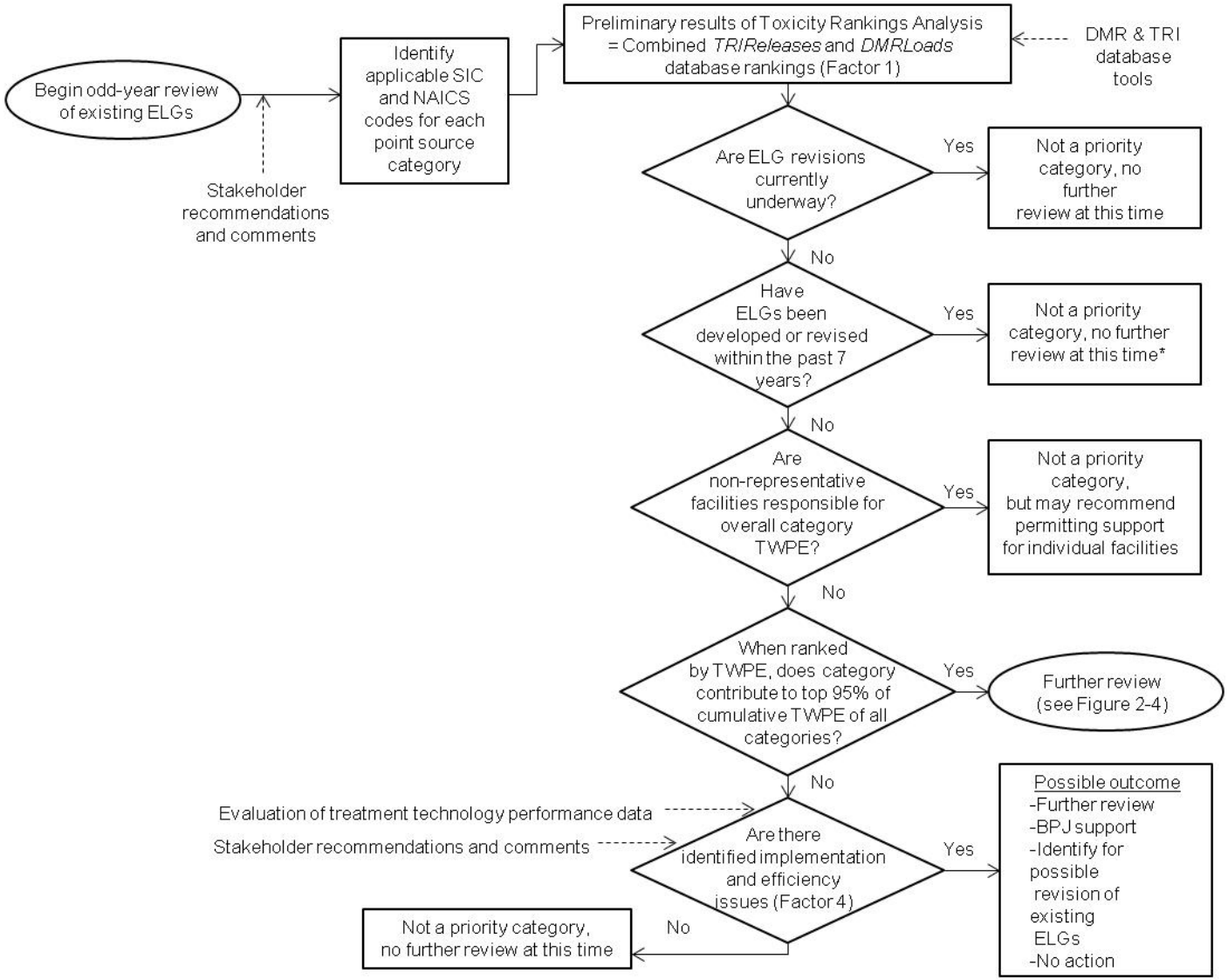

Figure 2-1. Odd-Year Annual Review of Existing ELGs

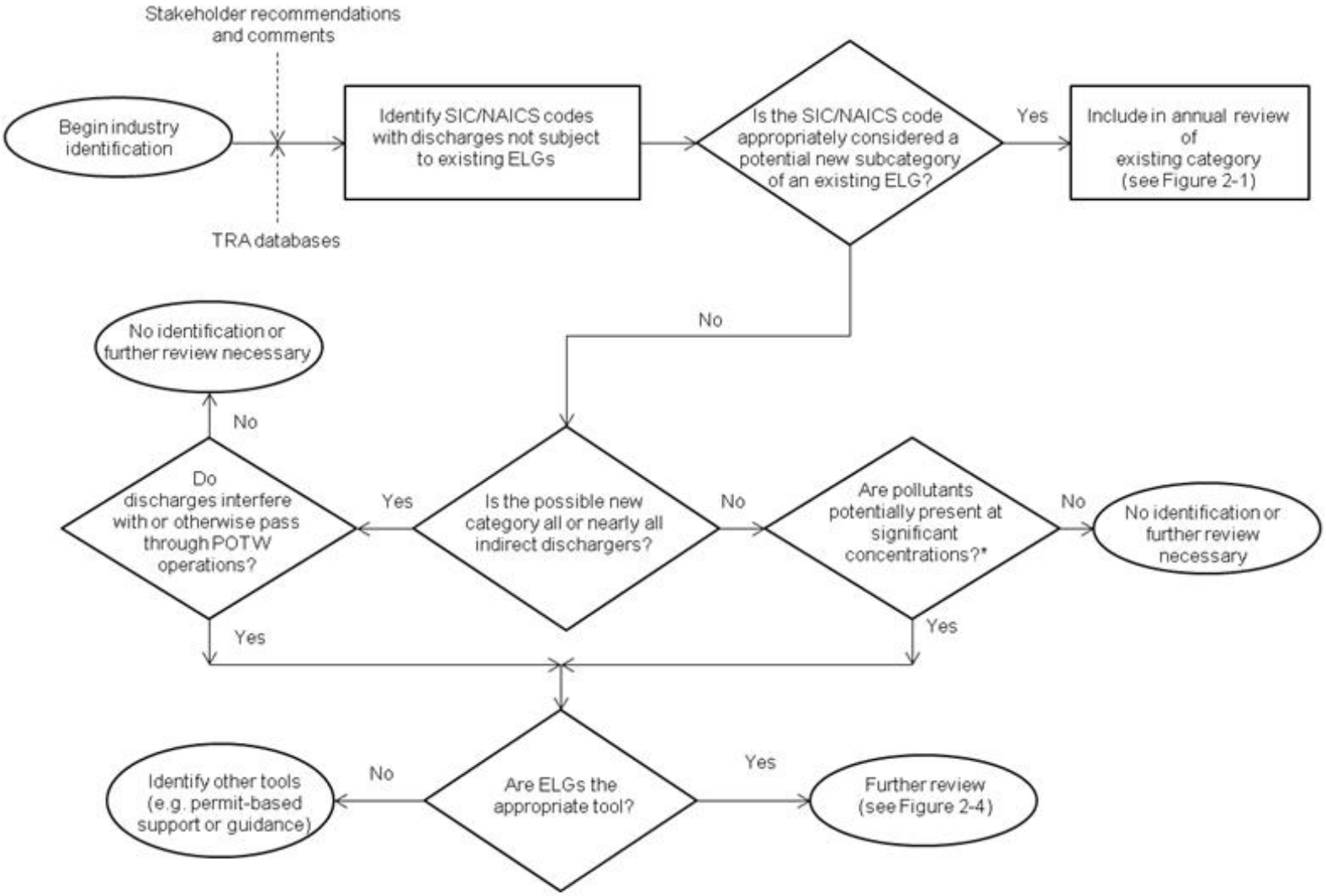

Figure 2-2. Odd-Year Identification of Possible New ELGs

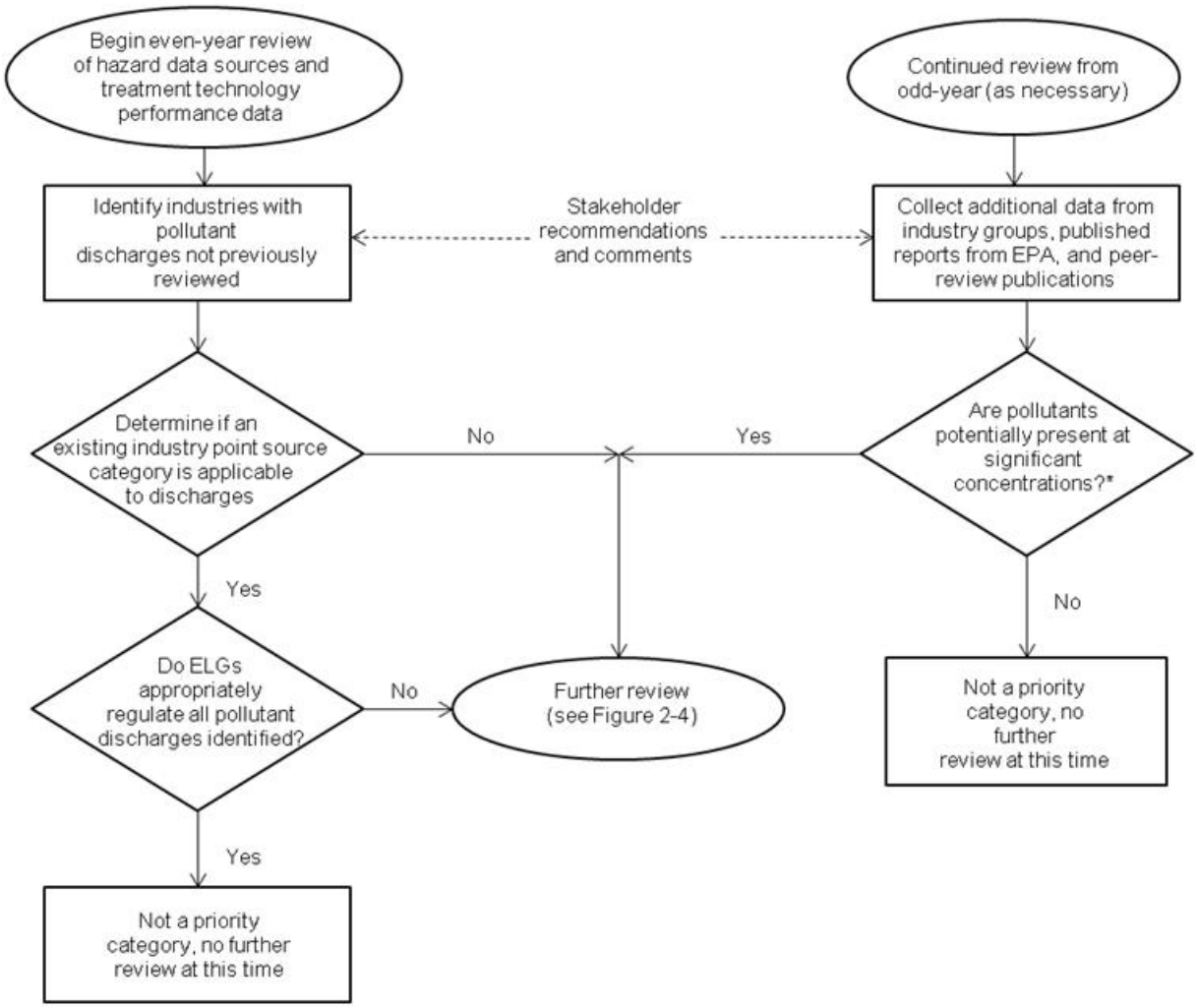

Figure 2-3. Even-Year Annual Review of Existing ELGs and Identification of Possible New ELGs

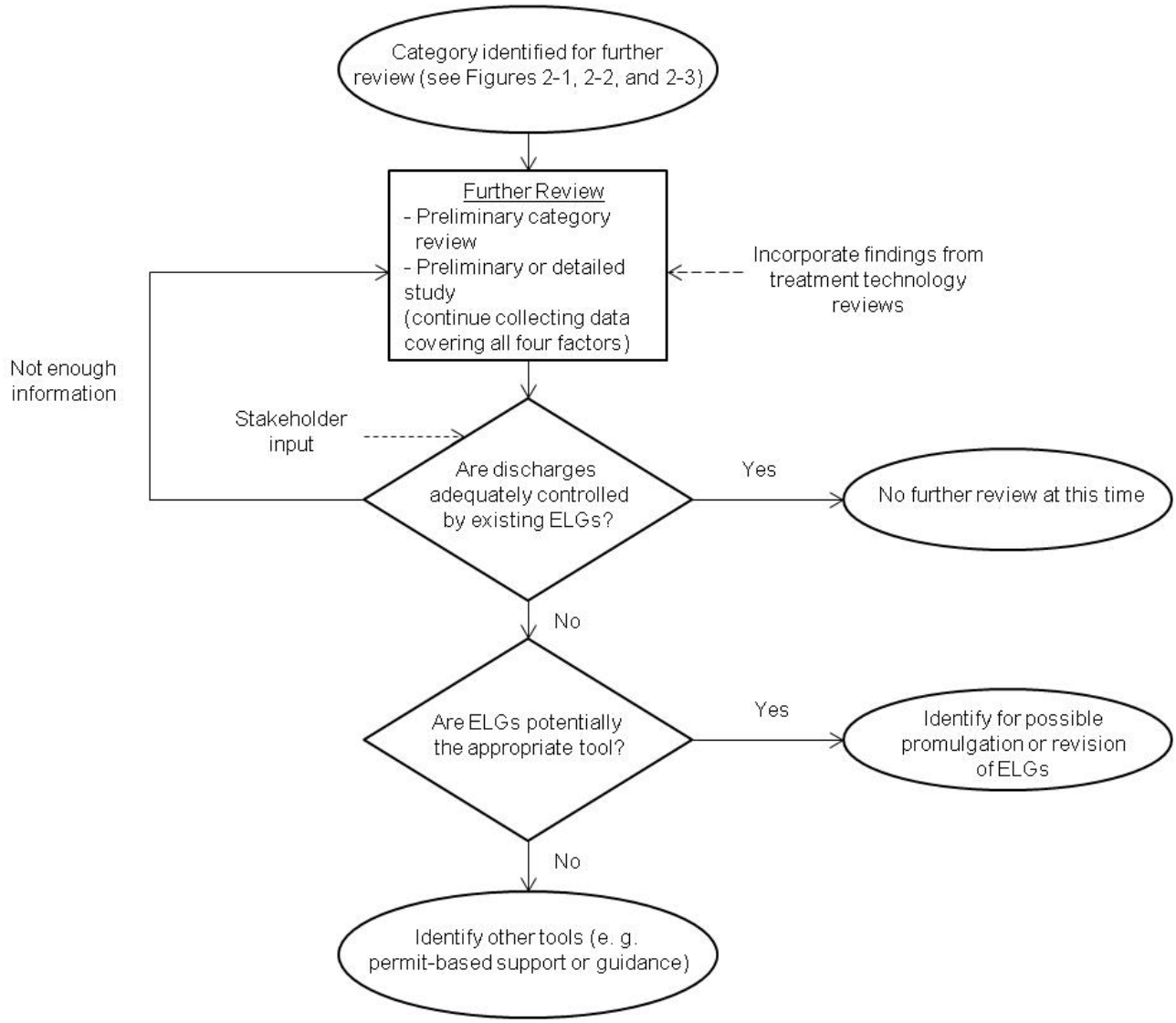

Figure 2-4. Further Review of Industrial Categories Identified During Odd- and Even-Year Annual Reviews

2.2.2 Effluent Guidelines Program Plans

CWA section 304(m)(1)(A) requires EPA to publish an Effluent Guidelines Program Plan (Plan) every two years that establishes a schedule for the annual review and revision, in accordance with section 304(b), of the effluent guidelines that EPA has promulgated under that section. EPA's *2012 Annual Review Report* presents the results of the section 304(b) reviews (U.S. EPA, 2014a).

Under the even- and odd- year annual-review approach described above in Section 2.2.1, EPA works to coordinate its annual reviews of existing effluent guidelines under section 304(b) with its publication of Preliminary and Final Plans under CWA section 304(m). As a result, Final Plans present the compilation of the odd- and even- year reviews and public comments received on the Preliminary Plan. EPA may initiate, continue, or complete preliminary category reviews or in-depth studies during the odd- or even-year reviews, depending upon when it identifies a category warranting further review. Additionally, EPA may publish the conclusions from these studies as part of the Preliminary or Final Plan, based on when during the planning cycle the study or review is completed.

EPA is coordinating its annual reviews under section 304(b) with publication of Plans under section 304(m) for several reasons. First, the annual reviews are inextricably linked to the planning effort because the results of each year of review can inform the content of the Preliminary and Final Plans (e.g., by identifying candidates for effluent guidelines revision, or by identifying point source categories for which EPA has not promulgated effluent guidelines). Second, even though it is not required to do so under either section 304(b) or section 304(m), EPA believes it can serve the public interest by periodically describing to the public the annual reviews (including the review process used) and the results of the reviews. Doing so at the same time as publishing the Preliminary and Final Plans makes both processes more transparent. Third, by requiring EPA to review all existing effluent guidelines each year, Congress appears to have intended for each successive review to build upon the results of earlier reviews.

2.3 Effluent Limitation Guidelines and Pretreatment Standards Overview

The national clean water industrial regulatory program is authorized under sections 301, 304, 306, and 307 of the CWA. The CWA directs EPA to promulgate categorical regulations through six levels of control:

1. Best practicable control technology currently available (BPT);
2. Best available control technology economically achievable (BAT);
3. Best conventional control technology (BCT);
4. New source performance standards (NSPS);
5. Pretreatment standards for existing sources (PSES); and
6. Pretreatment standards for new sources (PSNS).

For point sources that discharge pollutants directly into the waters of the U.S. (direct dischargers), the limitations and standards promulgated by EPA are implemented through National Pollutant Discharge Elimination System (NPDES) permits. See CWA sections 301(a), 301(b), and 402. For sources that discharge to POTWs (indirect dischargers), EPA promulgates pretreatment standards that apply directly to those sources and are enforced by POTWs and state

and federal authorities. See CWA sections 307(b) and (c). Figure 2-5 illustrates the relationship between the regulation of direct and indirect dischargers.

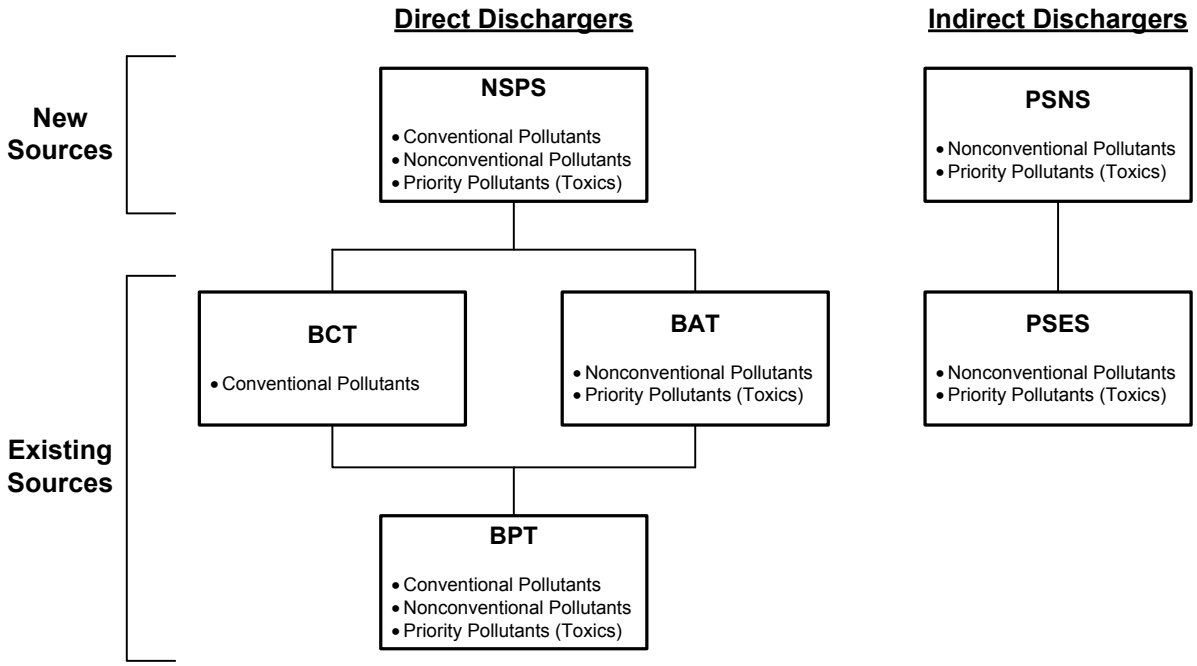

Figure 2-5. Regulations of Direct and Indirect Wastewater Discharges

2.3.1 Best Practicable Control Technology Currently Available (BPT) — CWA Sections 301(b)(1)(A) and 304(b)(1)

EPA develops effluent limitations based on BPT for conventional, toxic, and nonconventional pollutants. CWA section 304(a)(4) designates the following as conventional pollutants: biochemical oxygen demand (BOD_5), total suspended solids, fecal coliform, pH, and any additional pollutants defined by the Administrator as conventional. The Administrator designated oil and grease as an additional conventional pollutant on July 30, 1979 (see 44 FR 44501). EPA has identified 65 pollutants and classes of pollutants as toxic pollutants, of which 126 specific substances have been designated priority toxic pollutants. See Appendix A to Part 423, reprinted after 40 CFR Part 423.17. All other pollutants are considered to be nonconventional.

In specifying BPT, EPA looks at a number of factors. EPA first considers the total cost of applying the control technology in relation to the effluent reduction benefits. The Agency also considers the age of the equipment and facilities, the processes employed and any required process changes, engineering aspects of the control technologies, non-water-quality environmental impacts (including energy requirements), and such other factors the EPA Administrator deems appropriate. See CWA section 304(b)(1)(B). Traditionally, EPA establishes BPT effluent limitations based on the average of the best performances of facilities within the industry of various ages, sizes, processes, or other common characteristics. Where existing

performance is uniformly inadequate, BPT may reflect higher levels of control than currently in place in an industrial category if the Agency determines that the technology can be applied practically.

2.3.2 Best Conventional Pollution Control Technology (BCT) — CWA Sections 301(b)(2)(E) and 304(b)(4)

The 1977 amendments to the CWA required EPA to identify effluent reduction levels for conventional pollutants associated with BCT for discharges from existing industrial point sources. In addition to the other factors specified in section 304(b)(4)(B), the CWA requires that EPA establish BCT limitations after consideration of a two-part "cost-reasonableness" test. EPA explained its methodology for the development of BCT limitations in 1986 (see 51 FR 24974, July 9, 1986).

2.3.3 Best Available Technology Economically Achievable (BAT) — CWA Sections 301(b)(2)(A) and 304(b)(2)

For toxic pollutants and nonconventional pollutants, EPA promulgates effluent guidelines based on BAT. See CWA sections 301(b)(2)(A), (C), (D), and (F). The factors considered in assessing BAT include the cost of achieving BAT effluent reductions, the age of equipment and facilities involved, the process employed, potential process changes, non-water-quality environmental impacts (including energy requirements), and such other factors the EPA Administrator deems appropriate. See CWA section 304(b)(2)(B). The technology must also be economically achievable. See CWA section 301(b)(2)(A). In addition to end-of-pipe wastewater treatment, BAT limitations may be based on effluent reductions attainable through changes in a facility's processes and operations. Where existing performance is uniformly inadequate, BAT may reflect a higher level of performance than is currently being achieved within a particular subcategory based on technology transferred from a different subcategory or category. BAT may be based upon process changes or internal controls, even when these technologies are not common industry practice.

2.3.4 New Source Performance Standards (NSPS) — CWA Section 306

NSPS reflect effluent reductions based on the best available demonstrated control technology. New sources have the opportunity to install the best and most efficient production processes and wastewater treatment technologies. As a result, NSPS should represent the most stringent controls attainable through the application of the best available demonstrated control technology for all pollutants (i.e., conventional, nonconventional, and priority pollutants). In establishing NSPS, EPA takes into consideration the cost of achieving the effluent reduction and any non-water-quality environmental impacts and energy requirements. See CWA section 306(b)(1)(B).

2.3.5 Pretreatment Standards for Existing Sources (PSES) — CWA Section 307(b)

PSES apply to indirect dischargers and are designed to prevent the discharge of pollutants that pass through, interfere with, or are otherwise incompatible with the operation of POTWs, including wastewater conveyance and sludge disposal. Pretreatment standards are technology-based and are analogous to BAT effluent limitations guidelines. See CWA section 301(b)(1)(A).

The General Pretreatment Regulations, which set forth the framework for implementing national pretreatment standards, are found at 40 CFR Part 403.

2.3.6 Pretreatment Standards for New Sources (PSNS) — CWA Section 307(c)

Like PSES, PSNS apply to indirect dischargers and are designed to prevent the discharges of pollutants that pass through, interfere with, or are otherwise incompatible with the operation of POTWs. PSNS are to be issued at the same time as NSPS. See CWA section 307(c). New indirect dischargers have the opportunity to incorporate into their plants the best available demonstrated technologies. The Agency considers the same factors in promulgating PSNS as it considers in promulgating NSPS.

PART II: FINAL 2012 EFFLUENT GUIDELINES PROGRAM PLAN

3. 2012 EFFLUENT GUIDELINES PLANNING PROCESS AND METHODOLOGY

This section provides a summary of the process EPA used in its 2012 Annual Review to identify industrial categories for potential development of new or revised effluent limitations guidelines and standards (ELGs) and the data sources and limitations used to complete this review. In future even-year reviews, EPA intends to use this same process. This process consists of:

- Considering public comments on the Preliminary Plan and other stakeholder input.
- Continuing any ongoing preliminary category reviews (e.g., collecting more data, contacting permit writers, evaluating available treatment technology information) of specific point source categories that EPA identified for additional review in the odd-year review.
- Identifying and evaluating additional data sources and conducting supporting analyses to:
  - identify new wastewater discharges or pollutants not previously regulated; and
  - identify wastewater discharges that industry can more effectively treat or eliminate.

3.1 Summary of the 2012 Annual Review Methodology

This section provides a brief summary of the methodology EPA used for its 2012 Annual Review. For more information and details on EPA's 2012 Annual Review methodology and analyses see Part II (Sections 3 through 6) of EPA's *2012 Annual Review Report* (U.S EPA, 2014a).

3.1.1 Public Comments on the Preliminary 2012 Plan and Stakeholder Input

For the 2012 Annual Review, EPA considered public comments and stakeholder input received on the Preliminary 2012 Plan. See Section 4.2.1 for a summary of the public comments and stakeholder input received. For a detailed listing of the organizations that provided public comment and stakeholder input see DCN 07979.

3.1.2 Continued Review of Selected Point Source Categories

EPA also continued its review of three point source categories that EPA identified as warranting further review in the Preliminary 2012 Plan (78 FR 48159): Meat and Poultry Products (40 CFR Part 432); Petroleum Refining (40 CFR Part 419); and Pulp, Paper, and Paperboard (40 CFR Part 430). EPA's continued review consisted of collecting additional discharge data from permit writers, publicly available data sources (e.g., DMR Loading Tool), trade associations, and specific facility contacts to confirm the discharges reported in the TRA databases. Additionally, EPA collected information on available treatment technologies for specific industrial categories to compare current discharges to discharge levels that are treatable with available technologies.

3.1.3 Additional Data Sources and New Supporting Analyses

For the 2012 Annual Review, EPA explored additional data sources and conducted six new analyses (described briefly below) to supplement the toxicity rankings analysis (TRA) conducted as part of the 2011 Annual Review (U.S EPA, 2012a). These analyses included:

- Identification of Industrial Pollutants in Sewage Sludge
- Review of Chemical Action Plans
- Identification of Wastewater Discharges Related to Air Pollution Control Not Currently Covered by ELGs
- Review of Toxic Release Inventory (TRI) Industry Sectors Expansion
- Review of Analytical Methods
- Review of Industrial Wastewater Treatment Technologies

EPA identified and prioritized these data sources and analyses based on (1) the likelihood that they would assist in identifying unregulated industrial discharges, (2) their utility in identifying new wastewater treatment technologies or pollution prevention alternatives, and (3) how well the data represent the activity of an industrial category. EPA's goals in selecting these specific analyses were to identify new wastewater discharges or pollutants not previously regulated and to identify wastewater discharges that can be eliminated or treated more effectively.

EPA documented the data quality and usability of each source, analyzed how the data could be used to improve the characterization of industrial wastewater discharges (concentration and quantity of pollutants, wastewater treatment available for new industries/concentrations), and prioritized the findings for further review.

3.1.3.1 Identification of Industrial Pollutants in Sewage Sludge

EPA reviewed the Targeted National Sewage Sludge Survey (TNSSS), conducted by EPA's Office of Water (OW), in combination with indirect discharges from the 2009 TRI database, to examine pollutants discharged to POTWs and determine how those pollutants might interfere with beneficial use of sewage sludge. The TNSSS measured contaminant concentrations in sewage sludge from 74 publicly owned treatment works (POTWs). See Section 6.1 of the *2012 Annual Review Report* for details on the specific methodologies and analyses EPA employed for its review of the TNSSS data (U.S EPA, 2014a).

3.1.3.2 Review of Chemical Action Plans

EPA reviewed data and information from the Office of Pollution Prevention and Toxics (OPPT's) available chemical action plans (CAPs), published between 2009 to 2011, to identify new pollutants or wastestreams that might warrant regulation. Under the Toxic Substances Control Act (TSCA), OPPT has developed CAPs for 10 classes of chemicals that potentially create health and/or environmental hazards when manufactured in or imported into the U.S. Subsequently (Feb. 2012), OPPT modified its approach for evaluating existing chemicals under TSCA and began the Work Plan Chemicals initiative. See Section 6.2 of the *2012 Annual Review*

Report for details on the specific methodologies and analyses EPA employed for its review of OPPT's CAPs (U.S EPA, 2014a).

3.1.3.3 Identification of Wastewater Discharges Related to Air Pollution Control Not Currently Covered by ELGs

EPA reviewed federal air regulations to determine if, through the prescription of wet air pollution controls, they may result in the generation of unregulated industrial wastewater discharges or changes to currently regulated wastewater streams (containing new pollutants of concern). Under the Clean Air Act (CAA), EPA controls emissions of air pollutants through several programs, including New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP). EPA focused its review on NSPS and NESHAP rules promulgated or revised after 1990 to evaluate their potential impact on wastewater discharges from industries with older ELGs that were promulgated prior to the enactment of the air regulations. See Section 6.3 of the *2012 Annual Review Report* for details on the specific methodologies and analyses EPA employed for its review of federal air regulations (U.S EPA, 2014a).

3.1.3.4 Review of TRI Industry Sectors Expansion

In June 2011, EPA's Office of Environmental Information (OEI) initiated a rulemaking to add or expand the coverage of TRI for six industries, including phosphate mining, iron ore mining, solid waste combustors and incinerators, large dry cleaning facilities, bulk petroleum storage, and steam generating facilities. EPA reviewed the proposed expansion of TRI to evaluate whether new hazard data were available for these industries (that was used as a basis for the expansion proposal). EPA also evaluated whether the identified industrial sectors represent new or unregulated wastewater discharges that are not adequately regulated by ELGs. See Section 6.4 of the *2012 Annual Review Report* for details on the specific methodologies and analyses EPA employed for its review of TRI industry sector expansion data (U.S EPA, 2014a).

3.1.3.5 Review of Analytical Methods

EPA reviewed analytical methods recently developed or revised by the Agency to help identify unregulated pollutants in industrial wastewater discharges and to identify changes to existing analytical methods that provide for increased sensitivity that would allow EPA to identify previously undetected pollutants or strengthen existing requirements for regulated pollutants. EPA focused its review on recent updates to the wastewater analytical methods listed in 40 CFR Part 136 as well as drinking water methods developed by EPA's Office of Ground Water and Drinking Water and Office of Research and Development. See Section 6.5 of the *2012 Annual Review Report* for details on the specific methodologies and analyses EPA employed for its review of analytical methods (U.S EPA, 2014a).

3.1.3.6 Review of Industrial Wastewater Treatment Technologies

EPA has initiated a review of relevant literature to document the performance of new and improved industrial wastewater treatment technologies. EPA plans to capture these performance data in a searchable industrial wastewater treatment technology (IWTT) database. EPA intends to use the IWTT database in its screening process in future annual reviews to quantify the

effectiveness of technologies for removing pollutants of concern from specific industrial wastewater discharges. EPA is focusing its initial efforts on collecting and reviewing performance data for technologies that remove metals and that treat wastewater discharge pollutants from the Petroleum Refining (40 CFR Part 419), Metal Finishing (40 CFR Part 433), and Electroplating (40 CFR Part 413) point source categories. EPA's recent reviews of these categories suggest that discharges of metals and other potentially hazardous pollutants are of increasing concern. See Section 6.6 of the *2012 Annual Review Report* for details on the specific methodologies and analyses EPA employed for its review of industrial wastewater treatment technologies (U.S EPA, 2014a).

3.2 Categories Excluded from EPA's 2012 Annual Review

Consistent with its previous annual reviews, EPA eliminated from further consideration during its 2011 and 2012 Annual Reviews the following:

- Discharges from industrial categories for which EPA recently considered developing or revising ELGs, or for which EPA has recently promulgated or revised ELGs (within the past seven years).
- Discharges from facilities that require a NPDES permit but do not fall into an existing or new point source category or subcategory (e.g., Superfund sites).
- Discharges from facilities determined not to be representative of their category.

3.2.1 Categories for Which EPA has Recently Considered Developing or Revising ELGs or has Recently Promulgated or Revised ELGs

EPA did not consider as part of its 2011 and 2012 Annual Reviews industrial categories for which it has recently considered developing or revising ELGs because it has thoroughly reviewed these categories separately from the annual review process. These categories include Organic Chemicals, Pesticides, and Synthetic Fibers (OCPSF) (40 CFR 414) and Inorganic Chemicals Manufacturing (40 CFR 415) point source categories for facilities that produce chlorine and chlorinated hydrocarbons (CCH), as well as the coalbed methane extraction industry. See Section 5 of this Plan for details on EPA's determinations related to these categories.

Similarly, EPA excluded from its 2011 and 2012 Annual Reviews point source categories for which ELGs were recently established or revised but are not yet fully implemented, or were recently reviewed in a rulemaking context, but for which EPA decided to withdraw the proposal or select the "no action" option. In general, EPA removed an industrial point source category from further consideration during a review cycle if EPA established, revised, or reviewed the category's ELGs within seven years prior to the Annual Reviews. This seven-year period allows time for the ELGs to be incorporated into NPDES permits. Table 3-1 lists the categories EPA excluded from the 2011 and 2012 reviews due to this seven-year period.

Table 3-1. Point Source Categories That Have Undergone Recent Rulemaking or Review

40 CFR Part	Point Source Category	Date of Rulemaking
450	Construction and Development	December 1, 2009
122 and 412	Concentrated Animal Feeding Operations (CAFOs)	November 20, 2008
449	Airport Deicing	May 16, 2012

EPA also did not consider as part of its 2011 or 2012 Annual Reviews industrial categories for which it is currently engaged in a rulemaking process. These include steam electric power generation, dental amalgam, and oil and gas extraction, specifically shale gas extraction. See Section 5.2 of this Final 2012 Plan for details on the rulemaking status for these categories.

3.2.2 Discharges Not Categorizable

In its 2011 Annual Review, EPA identified discharges that are not categorizable into existing or new point source categories or subcategories (U.S. EPA, 2012a). In particular, EPA reviewed high TWPE discharges from a Superfund site (Auchterlonie, 2009). Direct discharges from Superfund sites, whether made onsite or offsite, are subject to NPDES permitting requirements (U.S. EPA, 1988a, 1988b). For the reasons discussed in the Preliminary 2012 Plan (78 FR 48159), EPA determined that these discharges do not fall into a single point source category and excluded these TWPE from the point source category rankings. EPA continued to exclude these discharges in its 2012 Annual Review.

3.3 Data Quality Assurance and Limitations

EPA's methodology for the 2012 Annual Review involved several components, as discussed in Section 3.1, including continued preliminary category reviews of selected point source categories, an evaluation of additional data sources and new supporting analyses, and an assessment of public comments and other stakeholder input.

EPA identified and used the following data sources as part of the six new analyses conducted for the 2012 Annual Review:

- Enforcement and Compliance History Online (ECHO)/Online Tracking Information System (OTIS).
- Supporting documentation to the Office of Air Quality Planning and Standards (OAQPS) Regulations: National Emission Standards for Hazardous Air Pollutants (NESHAP) and New Source Performance Standards (NSPS).
- Conference proceedings, water-related journals, industry-specific organization literature.
- Data provided by trade association contacts.
- State regulatory agency data.
- Data obtained directly from industry.
- Purdue University Calumet Water Institute-Argonne National Laboratory Task Force (Purdue-Argonne Task Force) Report.

- Steam Detailed Study Report (DSR).
- Targeted National Sewage Sludge Survey (TNSSS).
- EPA, state, and local government representative data and information.
- EPA Office of Water, Office of Ground Water and Drinking Water (OGWDW), and Office of Research and Development (ORD) Analytical Methods.
- EPA Office of Pollution Prevention and Toxic Substances (OPPT) program data sources: Chemical Action Plans (CAPs), Significant New Use Rule (SNUR).
- Office of Environmental Information (OEI) Toxic Release Inventory (TRI) Sectors Expansions Rulemaking Data.
- Perfluorooctanoic acid (PFOA) data sources: OPPT PFOA Stewardship Program, Long-Chain Perfluorinated Chemicals (PFCs) public docket.
- Office of Ground Water and Drinking Water (OGWDW) Drinking Water Treatability Database.

In addition, as in previous annual reviews, EPA continued to use TRI and DMR data from the DMR Loading Tool during the 2012 Annual Review. This section discusses these data sources and their limitations.

3.3.1 Additional Data Sources Supporting New Analyses

For its 2012 Annual Review, EPA used existing data to support the six new analyses of the impact of industrial discharges on the environment. These analyses relied on published literature identified during review of materials related to the targeted analyses. EPA obtained the existing data from publications and databases available from other EPA offices, www.regulations.gov, and other websites, as well as directly from industry and regulators (including EPA representatives). EPA considered the accuracy, reliability, and representativeness of data sources to assess their usability as follows.

Accuracy. EPA assumed that the underlying data and information contained in state and federal reports, selected conference proceedings, and peer-reviewed journal articles were accurate. That is, EPA assumed that data from these sources were of sufficient quality to identify characteristics of industrial discharges and that known analytical methods were used for any pollutant measurements.

Reliability. EPA evaluated existing data for reliability based on the following factors:

- The scientific work is clearly written, so that all assumptions and methodologies can be identified.
- The variability and uncertainty (quantitative and qualitative) in the information or in the procedures, measures, methods, or models are evaluated and characterized.
- The assumptions and methodologies are consistently applied throughout the analysis as reported in the source.

- Waste stream, parameters, units, and detection limits (when appropriate) are clearly characterized.

During the review of existing literature, EPA encountered sources that contained limited documentation of actual measurements, and instead provided qualitative discussion. For example, numerous media articles state that perfluorinated chemicals cause cancer, but the articles do not cite the source for the statement, do not provide numerical measurements of cancer incidence (increased risk), and do not provide amounts of exposure (such as mg/kg). In addition, many of articles from industry publications and conferences do not describe the analytical methods used to measure pollutant concentrations, but that the detection limits are consistently provided when measured concentrations are reported at or below detection. These data sources represented a lower level of reliability than peer-reviewed literature, but provided useful information for capturing the full range of environmental impacts associated with industrial discharges.

Representativeness. EPA evaluated existing data for use in qualitative analyses based on whether the data provide a national perspective and are relevant to and representative of the industry to which the data are applied.

For more information on the quality assurance activities supporting the 2012 Annual Review, including a summary of EPA's data quality and utility evaluation for the additional data sources, see Appendix B of the *2012 Annual Review Report* (U.S EPA, 2014a).

3.3.2 DMR and TRI Data

EPA has previously explained its use of DMR and TRI data in the *Technical Support Document for the Annual Review of Existing Effluent Guidelines and Identification of Potential New Point Source Categories* (2009 Screening-Level Analysis (SLA) Report) (U.S. EPA, 2009). The 2009 SLA Report provides the detailed methodology used to process thousands of data records and generate national estimates of industrial effluent discharges.

EPA relies on outputs from the DMR Loading Tool,[2] which categorizes and calculates pollutant loadings using the SIC and NAICS codes and toxic weighting factors (TWFs) in conjunction with DMR and TRI discharge data. In its analyses, EPA multiplies a mass loading of a pollutant in pounds per year (as reported in the DMR Loading Tool) by a pollutant-specific TWF to derive a "toxic-weighted pound equivalent" loading. (Throughout this document, the toxic-weighted pound equivalent is referred to as TWPE.) For more information on TWFs, see EPA's Toxic Weighting Factors Methodology (U.S. EPA, 2012b). EPA also classifies each facility reporting discharges into a particular industrial point source category based on the applicable SIC or NAICS codes for that facility. TRI includes information on a facility's NAICS code, while DMR data include information on a facility's SIC code. EPA then sums the TWPE for each facility classified in a point source category to calculate a total TWPE per category for a given year. Table 3-2 describes the utility and limitations of the DMR and TRI data.

[2] The DMR Loading Tool is located at: http://cfpub.epa.gov/dmr/. The tool is maintained by EPA's Office of Enforcement and Compliance Assurance, Office of Compliance.

Table 3-2. TRI and DMR Data Utility and Limitations

TRI	DMR
Utility of Data	
National scope	National scope
Includes releases to POTWs, not just direct dischargers to surface waters	Discharge reports are based on effluent chemical analysis and metered flows
Includes releases of many toxic chemicals, not just those on the facility permit	Includes facilities in any SIC code
Includes discharge data from manufacturing NAICS codes and some other industrial categories	
Limitations of Data	
Small establishments and those that don't meet reporting requirements are not included in the database	Data systems contain data only for pollutants in the facility permit
Some releases are based on estimates due to TRI reporting guidance, some facilities may over- or under-estimate releases	Limited discharge data on minor[b] discharges
Certain chemicals are reported as class, not individual compounds,[a] which can inaccurately estimate the toxicity of chemical releases	Data systems do not include data characterizing indirect discharges from industrial facilities to POTWs
Facilities are identified by NAICS codes, not point source category	Facilities do not always report duration of discharges, which may overestimate toxic releases based on the assumption that discharges are continuous
TRI only requires facilities to report certain chemicals; therefore, all pollutants discharged from a facility may not be captured	Some data systems do not identify the type of wastewater discharged, which may include stormwater or non-contact cooling water; pipe identification is not always clear
	Facilities are identified by SIC codes, not point source category
	Data may contain errors from manual data entry
	Facilities do not always provide average concentrations or quantities, which results in an overestimation if only maximum values are used

a Chemicals reported as a class include polycyclic aromatic compounds, dioxin and dioxin-like compounds, metal compounds.

b EPA developed a major/minor classification system for industrial and municipal wastewater discharges. The distinction was made initially to assist EPA and states in setting priorities for permit issuance and reissuance. Facilities with minor discharges must report compliance with NPDES permit limits via monthly DMRs submitted to the permitting authority; however, EPA does not require the permitting authority to enter data in the PCS and ICIS-NPDES databases. (U.S. EPA, 2010)

The DMR and TRI data EPA used have been evaluated and corrected during previous toxicity ranking analyses reported for calendar years 2000, 2002, 2004, and 2006–2011. For a detailed list of all corrections made to the 2009 DMR data, see Section 3.3.7 and 3.3.4, respectively, in EPA's *2011 Annual Review Report* (U.S. EPA, 2012a).

4. RESULTS OF THE 2011 AND 2012 ANNUAL REVIEWS

This section briefly summarizes the results of EPA's 2011 Annual Review and presents new findings from its 2012 Annual Review.

4.1 Summary of Results from the 2011 Annual Review

EPA published results of its 2011 Annual Review (U.S. EPA, 2012a), which consisted of the odd-year TRA, in support of the Preliminary 2012 Plan (78 FR 48159). From the 2011 Annual Review, EPA determined that additional review for three point source categories was appropriate, as announced in the Preliminary 2012 Plan: Pulp, Paper and Paperboard (40 CFR Part 430), Petroleum Refining (40 CFR Part 419), and Meat and Poultry Products (40 CFR Part 432). EPA continued to review these categories in the 2012 Annual Review.

4.2 Findings from the 2012 Annual Review

For the 2012 Annual Review, EPA evaluated public comments and stakeholder input received on the Preliminary 2012 Plan and continued its review of the three point source categories identified during the 2011 Annual Review as warranting additional review. Additionally, EPA identified additional data sources and conducted six new analyses to supplement the toxicity rankings analysis.

4.2.1 Findings from Public Comments and Stakeholder Input

EPA's annual review process considers information provided by the public and stakeholders regarding new or revised effluent limitations guidelines and pretreatment standards. Public comments received on EPA's prior reviews and Plans helped the Agency prioritize its analyses of existing effluent guidelines and pretreatment standards. This section presents a summary of the comments received on the Preliminary 2012 Plan.

EPA published its Preliminary 2012 Effluent Guidelines Program Plan (Preliminary 2012 Plan) and provided a 60-day public comment period starting on August 7, 2013 (see 78 FRN 48159). The Docket supporting this Final Plan includes a complete set of the comments submitted, as well as the Agency's responses (see DCN 07979).

EPA received comments on the Preliminary 2012 Plan from 19 organizations representing industry, six environmental groups, one state representing organization, one publicly owned treatment works group, one tribal government, and one county government.

Comments addressed the following subject areas:

- Coalbed methane and shale gas extraction (17 comments)
- Chlorine and chlorinated hydrocarbon (3 comments)
- Oil and gas coastal subcategory (2 comments)
- Alaska offshore seafood processors (2 comments)
- Dental amalgam (1 comment)
- Effluent limitation guidelines and standards (ELGs) and Plan process in general (1 comment)

- Other (1 comment)

For coalbed methane extraction (CBM extraction), EPA received 13 comments from industry representatives and county government supporting the delisting of CBM extraction for three main reasons:

- Additional costs would further reduce the feasibility of production, due to the declining economics of the industry.
- CBM extraction production and discharges are declining.
- Discharges are already effectively permitted.

Environmental groups commented that EPA should move forward with developing regulations for CBM extraction because EPA should not rely solely on economic considerations. The environmental groups suggest that changes in gas production processes, gas demand, and wastewater treatment costs could change EPA's conclusions. The environmental groups also noted there are environmental impacts from CBM extraction discharges that need to be addressed. One commenter provided information summarizing several ongoing Department of Energy projects related to CBM extraction and potential new produced water treatment technologies. The new technologies are variations of desalination and reverse osmosis systems. These studies have not yet been completed.

For chlorine and chlorinated hydrocarbon (CCH), two industry trade groups supported the delisting for the reasons EPA presented in the Preliminary 2012 Effluent Guidelines Program Plan. One company provided a comment correcting EPA's classification of their facility in EPA's *Chlorine and Chlorinated Hydrocarbon Data Collection and Analysis Summary* report.

Two commenters, one environmental organization and one tribal government, asked EPA to remove the exemption for Cook Inlet, Alaska from the zero discharge requirements in the oil and gas coastal ELGs.

One industry trade group requested that EPA revise the requirements under the Alaska Offshore Seafood Processors General Permit AK-G2-4000. Additionally, two industry trade groups petitioned EPA to initiate a rulemaking to add a subpart to the Canned and Preserved Seafood Processing point source category, adding ELGs for discharges resulting from the processing of seafood on mobile seafood processing vessels.

For Dental Amalgam, one POTW group requested that EPA take clear action on the draft dental amalgam separator rule and expressed support for dropping it from consideration if EPA did take such action.

One organization, representing a number of states, suggested improvements to the ELGs and 304m process in general, including using additional data sources to consider improved hazard data and advances in treatment technology. The commenter suggested that EPA incorporate information from other EPA offices and states into the ELG program. The commenter also stated that the metal finishing category should be re-examined because there have been significant changes in the industry over the last few years.

One industry trade group expressed support for EPA's conclusion that pulp and paper mills present a low risk and that the ELGs should be a lower priority for revision. A more detailed summary table of the comments can be found in the *2012 Annual Review Report* (U.S. EPA, 2014a). EPA carefully considered all public comments and information submitted in developing the Final 2012 Plan. A comment response document is also available at (DCN 07979).

4.2.2 Findings from Continued Review of Selected Point Source Categories

During the 2011 Annual Review, EPA identified three point source categories for which further review is appropriate: Meat and Poultry Products (40 CFR Part 432); Petroleum Refining (40 CFR Part 419); and Pulp, Paper, and Paperboard (40 CFR Part 430). EPA continued review of these categories as part of the 2012 Annual Review (U.S EPA, 2014a). Below are the findings from these 2012 continued category reviews.

- **Meat and Poultry Products (40 CFR Part 432).** EPA completed further review of Toxic Releases Inventory (TRI) reported nitrate discharges and found that the majority of the top nitrate compound dischargers are in compliance with the Part 432 total nitrogen limitations or are receiving new permits to meet Part 432 total nitrogen limitations. Therefore, EPA concludes that nitrate discharges from meat and poultry products facilities are decreasing due to the 2004 Part 432 effluent guidelines revisions.

- **Petroleum Refining (40 CFR Part 419).** EPA further reviewed discharges of dioxin and dioxin-like compounds and metals, identified as pollutants of concern in the TRA for the Petroleum Refining category. For dioxins, EPA found that one facility's reported discharges contributed to the majority (65 percent) of the dioxin and dioxin-like compound TRI TWPE, however this facility's reported discharges are estimated (based on the number of reformer catalyst regenerations) and not directly measured. From the 2010 DMR data for dioxin and dioxin-like compounds EPA only identified one refinery reporting discharging detectable concentrations (above the Method 1613B Minimum Level (ML)), though available data indicates this facility's dioxin discharges result largely from stormwater contaminated via aerial deposition, not the discharge of treated process wastewater. EPA has not yet determined whether dioxin is being discharged at concentrations above the 1613B Minimum Level (ML) or identified the primary source of the discharge (e.g., stormwater or process wastewater from catalytic reforming and catalyst regeneration operations).

  For metals discharges, EPA reviewed DMR data from 76 refineries from across the country and identified metals present in most petroleum refineries' effluent discharges that exceeded comparable treatability data for metals removals achieved by more recent technologies. EPA continued its examination of the petroleum refining category in 2013.

- **Pulp, Paper, and Paperboard (40 CFR Part 430).** EPA further reviewed discharges of dioxin and dioxin-like compounds and found that the majority of estimated releases reported to TRI were based on pollutant concentrations below the

Method 1613B ML. EPA concluded that dioxin and dioxin-like compounds from pulp and paper facilities are not a hazard priority at this time.

4.2.3 Findings from Additional Hazard Data Sources Supporting New Analyses

EPA identified additional data sources and conducted six new analyses as part of the 2012 Annual Review (U.S. EPA, 2014a). Below are the findings from these new analyses.

- **Identification of Industrial Pollutants in Sewage Sludge.** EPA's review of the Targeted National Sewage Sludge Survey (TNSSS), combined with available indirect discharge data from TRI identified the Metal Finishing point source category (40 CFR Part 433) as potentially discharging high concentrations of metals, particularly chromium, nickel, and zinc, to publically owned treatment works (POTWs). These metals could transfer to sewage sludge and impact its beneficial use. Based on the TNSSS and 2009 TRI datasets, EPA could not identify for further review any new pollutants of concern or wastewater discharges from industrial categories not currently regulated by ELGs. EPA focused its review on the pollutants in the TNSSS with discharge information available in TRI since TRI provided a means to link industrial wastewater sources to the pollutants found in POTW sludge. See Section 6.1 of the *2012 Annual Review Report* (U.S. EPA, 2014a) for more information regarding this analysis.
- **Review of Chemical Action Plans.** EPA reviewed data and information from the OPPT's available CAPs to identify new pollutants or waste streams that might warrant regulation. OPPT developed CAPs for 10 classes of chemicals that potentially create health and/or environmental hazards when manufactured in or imported into the U.S. If these potentially hazardous chemicals are currently produced and/or used in the U.S. and have the potential to be discharged in wastewater from manufacture and/or use, these wastewater discharges may warrant regulation.

  From review of the CAPs, EPA identified six chemicals or classes of chemicals that are currently produced and have known or potential wastewater discharges: Benzidine dyes, Bisphenol A (BPA), Hexabromocyclododecane (HBCD), Nonylphenol and Nonylphenol Ethoxylates, Perfluorinated Chemicals (PFCs), and Phthalates. Another class of chemicals, short-chain chlorinated paraffins (SCCPs) are no longer manufactured in the U.S., but they have been used in metal working and have the potential to be discharged in wastewater from this industry.

  Additionally, two of the chemicals, Methylene Diphenyl Diisocyanate (MDI) and Toluene Diisocyanate (TDI), do not have significant wastewater discharges. However, EPA identified that the hydrolysis byproducts of TDI and MDI, toluene diamine and methyl diphenyl diamine, may be present in industrial wastewater.

  One chemical category is being phased out of U.S. commerce; EPA does not intend to pursue further review for Penta, Octa, and Decabromodiphenyl Ethers (PBDEs).

  See Section 6.2 of the *2012 Annual Review Report* (U.S. EPA, 2014a) for more information regarding this analysis.

- **Identification of Wastewater Discharges Related to Air Pollution Control Not Currently Regulated by ELGs.** EPA identified new and revised air regulations that likely result in the generation of new wastestreams that contain metals at petroleum refineries. EPA also identified three air regulations that may result in an unregulated wastewater discharge: regulations for brick and structural clay product manufacturing; industrial, commercial, and institutional boilers; and industrial, commercial, and institutional steam generating units. In addition, EPA identified 13 industries with existing ELGs, for which new air regulations may result in the discharge of new or additional pollutants. See Section 6.3 of the *2012 Annual Review Report* (U.S. EPA, 2014a) for more information regarding this analysis.

- **Review of TRI Industry Sectors Expansion.** The TRI sector expansion rulemaking is still under development. Available information suggests that selenium discharges from phosphate mines (regulated under 40 CFR Part 136) may be a new wastewater pollutant of concern. See Section 6.4 of the *2012 Annual Review Report* (U.S. EPA, 2014a) for more information regarding this analysis.

- **Review of Analytical Methods.** EPA reviewed recent analytical method developments included in the 2012 Method Update Rule and identified that there are reduced detection limits for some metals and additions of new methods for detecting other pollutants of concern from industrial wastewater discharges, including: free cyanide, acid mine drainage, nonylphenol, and bisphenol A.

  In addition, EPA identified several pesticides measured by some of the approved pesticide analytical methods (listed in 40 CFR Part 136) that do not currently have effluent limits under the Pesticide Chemicals Manufacturing, Formulating, and Packaging ELGs (40 CFR Part 455).

  EPA also reviewed OGWDW and ORD drinking water analytical methods and identified two relatively new methods developed by ORD to measure concentrations of PFCs and 1,4-dioxane. OGWDW is using these methods in its Unregulated Contaminant Monitoring Rule (UCMR) to evaluate PFCs and 1,4-dioxane in drinking water. EPA has identified industrial wastewater discharges for both PFCs and 1,4-dioxane.

  See Section 6.4 of the *2012 Annual Review Report* (U.S. EPA, 2014a) for more information regarding this analysis.

- **Review of Industrial Wastewater Treatment Technologies.** EPA has initiated a review of scientific literature reporting the performance of new and improved industrial wastewater treatment technologies and plans to capture these performance data in a searchable industrial wastewater treatment technology (IWTT) database. As a first step, EPA is identifying and reviewing industrial wastewater treatment technology performance data related to petroleum refining, metal finishing, and electroplating industries (and metals removal in general). See Section 6.5 of the *2012 Annual Review Report* (U.S. EPA, 2014a) for more information regarding the findings from this analysis.

5. FINAL 2012 PLAN DECISIONS

This section presents EPA's final decisions on actions proposed in the Preliminary 2012 Plan (78 FR 48159). Preliminary results of the 2013 Annual Review and proposed actions resulting from both the 2012 and 2013 Annual Reviews are presented in Preliminary 2014 Plan (see Part III of this document).

5.1 Industries for Which EPA Is No Longer Undergoing an ELG Rulemaking

Chlorine and Chlorinated Hydrocarbons (CCH) Manufacturing:

In prior year reviews, EPA considered revisions to effluent limitations guidelines and standards (ELGs) for the Organic Chemicals, Pesticides, and Synthetic Fibers (OCPSF) (40 CFR 414) and Inorganic Chemicals Manufacturing (40 CFR 415) point source categories for facilities that produce chlorine and chlorinated hydrocarbons (CCH). EPA proposed to discontinue a revised ELG for facilities that produce chlorine and chlorinated hydrocarbons (CCH) in the preliminary 2012 plan, and after considering public comments, EPA has decided not to move forward with a rulemaking for this industry.

EPA began an ELG rulemaking for the CCH Manufacturing Industry in March 2005, after issuing the 2004 Effluent Guidelines Program Plan (69 FR 53705). In the 2004 Effluent Guidelines Program plan, EPA selected the vinyl chloride (a type of chlorinated hydrocarbon) manufacturing segment of the organic chemicals industry for possible revision because preliminary analysis showed that the segment discharged significant quantities of toxic weighted pound-equivalents. In addition, because many chlorine manufacturers are co-located with vinyl chloride manufacturing and because these facilities discharge significant quantities of TWPEs, EPA also selected the chlorine manufacturing segment of the inorganic chemicals industry for possible revision. Also, polyvinyl chloride (PVC) manufacturers were considered to be part of the vinyl chloride manufacturing segment due to frequent co-location.

As part of the initial industry assessment, both industry and EPA collected samples to measure dioxins being generated and discharged in the wastewater at CCH facilities. First, EPA completed 13 site visits to determine sampling possibilities at facilities with potential BAT wastewater treatment technology. Ultimately, four sampling episodes were completed by EPA. Additionally, 12 sampling episodes were completed by the Vinyl Chloride Producers (VCP) as part of the voluntary plan established in February 2007 as an alternative to completing an EPA questionnaire or further EPA sampling. EPA designed the sampling plans for each of the 12 facilities.

After thoroughly reviewing all of the dioxin sampling data and evaluating public comments received on the Preliminary 2012 Plan, EPA has decided not to move forward with the development of effluent limitations guidelines for the CCH manufacturing industry. Very low TWPE annual discharges were calculated for all PVC manufacturers for which data were available. Similarly, very low TWPE annual discharges were calculated for all but one of the chlorine manufacturing facilities for which data were collected. Although the chlorinated hydrocarbon manufacturers that manufacture vinyl chloride discharge a maximum of 1.1 million TWPEs, one facility accounts for the vast majority of this TWPE and the associated discharge of dioxins. Also, almost all chlorinated hydrocarbon manufacturing facilities that manufacture vinyl

chloride already have wastewater treatment technology that would potentially represent "best available technology" for the industry. EPA therefore has determined that it would be best to address the few facilities with significant dioxin discharges through permitting rather than through the development of national effluent guidelines (U.S. EPA, 2012c).

Coalbed Methane (CBM) Extraction Industry:

In its Final 2010 ELG Plan, EPA also indicated it was initiating rulemakings to revise ELGs for the Oil and Gas Extraction Point Source Category (40 CFR Part 135) to address discharges from coalbed methane and shale gas extraction. In the 2012 Preliminary Plan, EPA proposed to delist the coalbed methane extraction (CBM extraction) industry from the effluent guidelines plan and to discontinue the rulemaking. EPA proposed to delist the CBM extraction industry from the effluent guidelines plan based on new information regarding the declining economic viability of CBM extraction production at a national level, which affects the economic achievability of controls for the CBM extraction industry as a whole. The reduced economic viability of CBM extraction production results from declining natural gas prices, due in large part to the increased extraction of natural gas from other sources, such as shale formations. (U.S. EPA, 2013a; U.S. EPA, 2013b). The initial decision to identify this industry for rulemaking was based on the results of a detailed industry study and comments from the public indicating at that time that CBM extraction was a growing industry and that treatment technologies were available to address pollutants discharged by the industry. However, since initiating the rulemaking, more recent data on the quantity and projected levels of CBM extraction production and CBM extraction production economics indicate otherwise. After reviewing financial data pertaining to this industry collected through the Detailed Questionnaire for the Coalbed Methane Extraction Sector, and natural gas price projections through 2040 from the U.S. Energy Information Administration (EIA), wastewater quality/quantity data and the cost of available wastewater treatment options, EPA was not able to identify a wastewater treatment technology that would be economically achievable for this industrial subcategory as a whole. Although potential treatment technologies exist, are demonstrated, and may be affordable for some sites, these technologies do not appear to be economically achievable for the CBM extraction industry as a whole due, in part, to the decrease in gas prices as a result of the recent boom in development of shale gas resources. EPA's analysis found that the cost of treatment technologies would likely lead to early shutdown of existing wells, with associated loss of CBM extraction gas production to society; in addition, EPA's analysis found that new CBM extraction wells may not be economically viable for a substantial period into the future, and that imposing an additional cost for new treatment technologies at this time would further extend the time in which new CBM extraction wells could become economically viable.

EPA received comments on its proposal to delist the CBM extraction industry from industry, environmental groups, and a local government official. In general, environmental groups opposed EPA's proposal primarily because CBM extraction discharges may have negative impacts; these comments argued that EPA's decision should not be driven by costs to the industry and/or the associated economic impacts. These commenters did not disagree with the EIA projections of natural gas prices that underlie EPA's economic analyses; rather, they focused on the inherent uncertainty in predicting gas prices. They assert that because of the uncertainty, EPA should not base decisions on it. They also noted that the potential for CBM

extraction development remains, and increases in demand could once again shift the projections for this subcategory.

Others supported EPA's proposal based on the declining economic condition of the industry since EPA's announcement and previous data collection, and/or provided additional company-specific information regarding the effect of gas prices on the company's current and projected operation.

After reviewing all of the comments and its rulemaking record, EPA concludes that it did not receive any data or information to alter its former findings. EPA concludes that while effective technologies exist, are demonstrated, and may be affordable for some sites, these technologies are not economically achievable for the CBM extraction industry as a whole. This applies to existing and new CBM extraction wells based on current and future economic conditions. See "Economic Analysis for Existing and New Projects in the Coalbed Methane Industry" (U.S. EPA, 2013a).

EPA's decision to delist the CBM extraction industry based on economic achievability is appropriate. Indeed, the statute specifically provides that for toxic and non-conventional pollutants, limitations be based on the "best available technology *economically achievable,"* thus requiring a consideration of economic achievability in establishing effluent limitation guidelines based on BAT. CWA Section 301(b)(2)(A), 33.U.S.C. 1311(b)(2)(A) (emphasis added). If EPA is unable to identify an available technology that is economically achievable for the industry as a whole, EPA does not have a basis for establishing effluent guidelines for this industry. Generally, the EPA determines economic achievability on the basis of the projected effect of cost of compliance with BAT limitations and pretreatment standards on the overall industry and subcategory financial conditions, as discussed in the Economic Analysis. Similarly, in establishing NSPS and PSNS, EPA is directed to take into consideration the "cost of achieving the effluent reductions" (CWA section 306(b)(1)(B), 33. U.S.C. 1316(b)(1)(B)), and EPA appropriately conducted a barrier to entry analysis in considering such costs, as discussed in the Economic Analysis.

EPA is not mandated to make decisions on perfect information, but rather on the best information and data available to the Agency. Therefore, while the EPA acknowledges that EIA projections of natural gas prices are uncertain, EIA's projections are regarded as high quality, unbiased projections from a credible government source. The commenters did not provide any other sources of natural gas price projections. EPA continues to find that EIA's projections provide a sufficient basis for its regulatory determinations. Additionally, EPA did not receive any information or data to refute its other data sources or its economic analyses. Rather, the Agency received additional data that supports its analysis.

EPA is not suggesting that direct and indirect wastewater discharges associated with CBM extraction may not have negative environmental impacts and do not ever need to be controlled. On the contrary, EPA notes that in establishing NPDES permits, permitting authorities, in the absence of applicable ELGs, must establish technology-based effluent limits on a case-by-case basis using best professional judgment (BPJ), considering the same factors that EPA would consider in establishing an effluent guideline (40 CFR 125.3(c)(2)). Additional limitations based on water quality standards are also required to be included in the permits in

certain circumstances to protect water quality should specific facilities' discharges be found to cause, or have the reasonable potential to cause, violations of state water quality standards. Nothing in the record for today's decision precludes a permitting authority from making the determination on a site-specific basis that a technology is available and economically achievable upon which to base technology-based limitations using BPJ. In fact, EPA's record demonstrates that on a site-specific basis, technologies are already being employed to control pollutant discharges associated with CBM extraction. The record demonstrates that at this time, these requirements should not be established on a uniform basis across the entire industry, but should instead continue to be appropriately established on a site-specific BPJ basis.

The data that EPA evaluated to come to this decision, including public comments received on its proposal to delist the coalbed methane extraction industry in the Preliminary 2012 Plan, are available for review in the Federal Data Management System Docket EPA-HQ-OW-2010-0824, available at www.regulations.gov.

5.2 Industries Previously Identified for Further Review for Which EPA is Taking No Action

In the Preliminary 2012 Plan (78 FR 48159), EPA announced its continued review of dioxin and dioxin-like compounds for the Pulp, Paper, and Paperboard (40 CFR Part 430) and nitrate discharges for the Meat and Poultry Products (40 CFR Part 432) point source categories. Based on the findings from the 2012 Annual Review (U.S. EPA, 2014a) related to these categories, EPA has concluded that no further review of these discharges is warranted and is taking no further action related to these categories at this time.

Meat and Poultry Products Manufacturing:

For Meat and Poultry Products, EPA determined that a majority of the top nitrate compound dischargers are in compliance with the Part 432 total nitrogen limitations or are receiving new permits to meet Part 432 total nitrogen limitations. Therefore, EPA concludes that nitrate discharges from meat and poultry products facilities are decreasing due to the 2004 Part 432 effluent guidelines revisions.

Pulp, Paper, and Paperboard Manufacturing:

For Pulp, Paper, and Paperboard, EPA determined that a majority of the estimated dioxin and dioxin-like compound releases reported to TRI were based on pollutant concentrations below the Method 1613B ML. Therefore, EPA concluded that dioxin and dioxin-like compounds from pulp and paper facilities are not a hazard priority at this time.

5.3 Potential Indirect Dischargers for Pretreatment Standards

5.3.1 Evaluation of Pass-Through and Interference of Toxic and Non-Conventional Pollutants Discharged to POTWs

All indirect dischargers are subject to general pretreatment standards (40 CFR 403), including a prohibition on discharges causing "pass-through" or "interference" (See 40 CFR 403.5). All POTWs with approved pretreatment programs must develop local limits to

implement the general pretreatment standards. All other POTWs must develop such local limits where they have experienced pass-through or interference and such a violation is likely to recur. There are approximately 1,500 POTWs with approved pretreatment programs and 13,500 small POTWs that are not required to develop and implement pretreatment programs.

In addition, EPA establishes technology-based national regulations, termed "categorical pretreatment standards," for categories of industry discharging pollutants to POTWs that may pass through, interfere with, or otherwise be incompatible with POTW operations (Clean Water Act section 307(b)). Generally, categorical pretreatment standards are designed such that wastewaters from direct and indirect industrial dischargers are subject to similar levels of treatment. EPA has promulgated such pretreatment standards for 35 industrial categories.

One of the tools traditionally used by EPA in evaluating whether pollutants pass through a POTW is a comparison of the percentage of a pollutant removed by POTWs with the percentage of the pollutant removed by discharging facilities applying the best available control technology economically achievable (BAT). Pretreatment standards for existing sources are technology-based and are analogous to BAT ELGs. In most cases, EPA has concluded that a pollutant passes through the POTW when the median percentage removed nationwide by representative POTWs (those meeting secondary treatment requirements) is less than the median percentage removed by facilities complying with BAT effluent limitations guidelines for that pollutant.

This approach to the definition of "pass-through" satisfies two competing objectives set by Congress: (1) that standards for indirect dischargers be equivalent to standards for direct dischargers and (2) that the treatment capability and performance of POTWs be recognized and taken into account in regulating the discharge of pollutants from indirect dischargers.

The term "interference" means a discharge which, alone or in conjunction with a discharge or discharges from other sources, both (1) inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use, or disposal and (2) therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with applicable regulations or permits. See 40 CFR 403.3(k). To determine the potential for interference, EPA generally evaluates the industrial indirect discharges in terms of: (1) the compatibility of industrial wastewaters and domestic wastewaters (e.g., type of pollutants discharged in industrial wastewaters compared to pollutants typically found in domestic wastewaters); (2) concentrations of pollutants discharged in industrial wastewaters that might cause interference with the POTW collection system, the POTW treatment system, or biosolids disposal options; and (3) the potential for variable pollutant loadings to interfere with POTW operations (e.g., batch discharges or slug loadings from industrial facilities interfering with normal POTW operations).

If EPA determines that a category of indirect dischargers causes pass-through or interference, EPA will then consider the BAT and BPT factors (including "such other factors as the Administrator deems appropriate") specified in section 304(b) to determine whether to develop pretreatment standards for these activities. Examples of "such other factors" include a consideration of the magnitude of the hazard posed by the pollutants discharged as measured by:

(1) the total annual TWPE discharged by the industrial sector and (2) the average TWPE discharged among facilities that discharge to POTWs. Additionally, EPA would consider whether other regulatory tools (e.g., use of local limits under Part 403) or voluntary measures would better control the pollutant discharges from this category of indirect dischargers. For example, EPA relied on a similar evaluation of "pass-through potential" in its prior decision not to promulgate national categorical pretreatment standards for the Industrial Laundries industry. See 64 FR 45071 (August 18, 1999). EPA noted in this 1999 final action that, "While EPA has broad discretion to promulgate such (national categorical pretreatment) standards, EPA retains discretion not to do so where the total pounds removed do not warrant national regulation and there is not a significant concern with pass through and interference at the POTW." See 64 FR 45077 (August 18, 1999).

During the 2012 Annual Review, EPA's review of the Targeted National Sewage Sludge Survey (TNSSS), combined with available indirect discharge data from TRI, identified the Metal Finishing Point Source Category (40 CFR Part 433) as potentially discharging high concentrations of metals, particularly chromium, nickel, and zinc, to POTWs. These metals could transfer to sewage sludge and impact its beneficial use.

5.4 Industries for Which EPA is Currently Undergoing an ELG Rulemaking

EPA is currently undergoing a rulemaking that would revise ELGs for the Steam Electric (40 CFR 423) Point Source Category. Because the Steam Electric rulemaking is underway, EPA excluded discharges from these facilities from analysis under the 2011 and 2012 Annual Reviews since a guideline was already underway.

EPA also has been undergoing a rulemaking to develop potential pretreatment requirements for discharges of mercury from the dental industry. Based on information submitted in prior annual reviews (2004, 2006, and 2008), commenters raised concerns about discharges of mercury from dentists facilities and urged EPA to consider establishing effluent guidelines and pretreatment standards for such discharges. EPA announced the dental amalgam rulemaking to regulate mercury discharges from dentists' offices in the Final 2010 Plan.

EPA also indicated in its Final 2010 ELG Plan (76 FR 66286) that it was initiating two separate rulemakings to potentially revise ELGs for the Oil and Gas Extraction Point Source Category (40 CFR Part 435) to address discharges from coalbed methane and shale gas extraction. As discussed above, after proposing not to go forward with a rulemaking pertaining to the coalbed methane extraction industry and considering public comments on this proposal, EPA has decided to delist the coalbed methane extraction industry from the effluent guidelines plan. However, EPA is continuing the rulemaking to potentially revise the ELGs for the Oil and Gas Extraction Point Source Category to address pretreatment standards for shale gas extraction.

5.4.1 EPA's Current Schedule for ELG Actions

Steam Electric Power Generation:

-Proposed Rule	June 7, 2013
-Final Rule	September 2015

Dental Amalgam:

-Proposed Rule	September 2014
-Final Rule	March 2016

Unconventional Extraction in the Oil and Gas Industry

-Proposed Rule (Shale Gas Extraction)	October 2014

5.5 Results of Solicitation for Innovation and Technology in the Effluent Guidelines Program

Innovation and technology have played key roles in improving the strength of the U. S. economy while at the same time vastly improving public health and the environment. The U. S. leads the way in the environmental technology arena that has become a worldwide market of over $800 billion. The environmental technology sector employs about 1.7 million Americans.

EPA solicited public comments in the Preliminary 2012 Plan to provide the public with an opportunity to advance the dialogue about ways EPA can foster innovative technologies while fulfilling its obligations under Sections 304(m), 301(d), 304(b), 304(g), and 307(b) of the Clean Water Act. EPA sought public input and comment on the following questions and related themes:

- Are there new, innovative pollution control or pollution prevention technologies that can be used by any of the existing 58 categories of industry with effluent limitations guidelines?
- Are there innovative manufacturing approaches that can be used by industries to reduce or prevent their wastewater discharges?
- How can EPA's effluent limitations guidelines program enhance technology transfer to catalyze and harness innovation to solve industrial wastewater problems, both now and in the future?
- How can EPA better foster consideration of innovative technologies through the effluent guidelines planning process?

EPA did not receive any public comment or stakeholder input on this solicitation.

PART III: PRELIMINARY 2014 EFFLUENT GUIDELINES PROGRAM PLAN

6. SUMMARY OF FINDINGS FROM THE 2013 ANNUAL REVIEW AND EPA'S PRELIMINARY 2014 EFFLUENT GUIDELINES PROGRAM PLAN

This section presents a summary of the findings from EPA's 2013 Annual Review and EPA's Preliminary 2014 Plan. EPA developed the Preliminary 2014 Plan based on information gathered as part of EPA's 2011, 2012, and 2013 Annual Reviews, including information from stakeholders and public comment received on the Preliminary 2012 Plan. EPA is requesting public comment on the Preliminary 2014 Plan, particularly on the potential actions and next steps related to the specific industries or target pollutants identified. EPA will consider public comment as it develops the Final 2014 Effluent Guidelines Program Plan.

6.1 Findings from EPA's 2013 Annual Review

In its 2013 Annual Review, consistent with the odd-year review methodology, EPA conducted a toxicity ranking analysis (TRA) to identify and rank categories with pollutant discharges that may pose a substantial hazard to human health and the environment (see Section 3 of the Preliminary 2012 Plan (78 FR 48159) for details on the odd-year annual review methodology). For the 2103 TRA, EPA relied on 2011 discharge monitoring report (DMR) and Toxics Release Inventory (TRI) data to rank industrial discharge categories by toxic-weighted pound equivalents (TWPE) released. From the data, EPA prioritized for further review those industrial categories accounting for 95 percent of the cumulative combined DMR and TRI TWPE. The results of the TRA are presented in Table 6-1 below. The TRA is the basis of EPA's 2013 Annual Review and supports the proposed actions presented in this Preliminary 2014 Plan.

The full results of the 2013 Annual Review are published in the 2013 Annual Review Report. The 2013 Annual Review Report details the TRA methodology, data sources and limitations, facility-specific data errors and corrections, and specific findings from EPA's preliminary category reviews of each of the categories identified in the table below (U.S. EPA, 2014b).

Table 6-1. Results of EPA's 2013 Toxicity Ranking Analysis

40 CFR Part	Point Source Category	TRI TWPE	DMR TWPE	Total TWPE	Cumulative Percentage of Total TWPE	Rank
414	Organic Chemicals, Plastics And Synthetic Fibers[a]	148,000	1,540,000	1,690,000	13.1%	1
430	Pulp, Paper And Paperboard	651,000	1,030,000	1,690,000	26.3%	2
419	Petroleum Refining	681,000	752,000	1,430,000	37.4%	3
NA	Drinking Water Treatment	1,640	1,380,000	1,390,000	48.2%	4
440	Ore Mining And Dressing	1,230,000	110,000	1,340,000	58.6%	5
420	Iron And Steel Manufacturing[a]	82,900	1,170,000	1,250,000	68.4%	6
418	Fertilizer Manufacturing	6,670	599,000	606,000	73.1%	7
415	Inorganic Chemicals Manufacturing[a]	327,000	142,000	469,000	76.7%	8
421	Nonferrous Metals Manufacturing	42,900	383,000	426,000	80%	9
455	Pesticide Chemicals	374,000	19,300	393,000	83.1%	10

Table 6-1. Results of EPA's 2013 Toxicity Ranking Analysis

40 CFR Part	Point Source Category	TRI TWPE	DMR TWPE	Total TWPE	Cumulative Percentage of Total TWPE	Rank
409	Sugar Processing	430	373,000	374,000	86%	11
433	Metal Finishing	51,700	265,000	317,000	88.5%	12
451	Concentrated Aquatic Animal Production	NA	292,000	292,000	90.7%	13
434	Coal Mining	564	189,000	189,000	92.2%	14
432	Meat And Poultry Products	39,100	119,000	158,000	93.4%	15
429	Timber Products Processing	32,300	98,600	131,000	94.5%	16
435	Oil & Gas Extraction	NA	106,000	106,000	95.3%	17
Total TWPE for Categories in Top 95%		**3,670,000**	**8,570,000**	**12,300,000**		
Total TWPE for All Point Source Categories		**3,920,000**	**8,930,000**	**12,900,000**		

Source: *DMRLTOutput2011_v1* and *TRILTOutput2011_v1*.
NA: Not Applicable.
[a] Categories with a subcategory currently under review or recently reviewed.

6.2 Proposed Actions for the Preliminary 2014 Plan

Based on public comments and other input received on the Preliminary 2012 Plan, EPA's review of new data sources and information, and the supporting analyses conducted in its 2012 Annual Review, and the TRAs conducted in 2011 and 2013, EPA is proposing the following actions:

- **Study of Centralized Waste Treatment** (CWT) facilities. EPA plans to conduct a detailed study of CWT facilities accepting oil and gas extraction wastewater. Although discharges from CWT facilities are regulated under 40 CFR Part 437, the current regulations may not provide adequate controls for oil and gas extraction wastewaters. As EPA noted in the Final 2010 ELG Plan and again in the Preliminary 2012 ELG Plan, when injection is not a viable option for oil and gas extraction wastewater disposal, operators may transfer this wastewater to a CWT facility. In some cases, the CWT facility treats the oil and gas wastewater so that it can be re-used in subsequent extractions. Others treat the wastewater and subsequently discharge it to a publically owned treatment works (POTW) or to surface waters. Many CWT facilities do not have treatment for some pollutants present in oil and gas wastewaters (e.g., TDS, radionuclides) enabling these pollutants to pass through the treatment system which may result in discharge to a POTW or surface water. Based on more recent information collected by EPA, the trend of sending oil and gas wastewaters to CWT facilities is increasing. Therefore, EPA and some States are concerned about the transfer of oil and gas wastewaters to CWT facilities and their subsequent discharge. EPA expects, as part of the study, to collect data on the extent of CWT facilities accepting oil and gas extraction wastewater, available treatment technologies (and their associated costs), discharge

type, financial characteristics of these CWT facilities, and the environmental impacts of discharges from these CWTs.

- **Study of Petroleum Refineries.** EPA plans to initiate a detailed study of Petroleum Refineries (40 CFR Part 419). EPA's continued category review of petroleum refining (40 CFR Part 419) toxic weighted discharges and review of new and revised air regulations indicates that implementation of wet air-pollution controls, as well as a changes in feedstock, may result in an increased discharge of metals from petroleum refineries, potentially at concentrations above treatable levels. In addition, EPA has determined that further review of dioxin and dioxin-like compound discharges from petroleum refineries is appropriate to determine whether dioxin is being discharged at concentrations above the 1613B Minimum Level (ML) and to identify the primary source of the discharge (e.g., stormwater or process wastewater from catalytic reforming and catalyst regeneration operations). Specifically, EPA expects to use the study to determine whether petroleum refining warrants new or revised effluent limitations guidelines and standards (ELGs).
- **Continued Preliminary Category Review of Metal Finishing.** EPA plans to continue a preliminary categorical review of the Metal Finishing point source category (40 CFR Part 433). EPA's review of Targeted National Sewage Sludge Survey (TNSSS) data indicates that these facilities may be potentially discharging high concentrations of metals, particularly chromium, nickel, and zinc, to publically owned treatment works (POTWs). These metals could transfer to sewage sludge and impact its beneficial use. Additionally EPA intends to consider changes that have occurred in the metal finishing chemistry which may result in changes in pollutant discharge characteristics.
- **Continued Population and Use of IWTT Database.** EPA plans to continue to collect industrial wastewater treatment technology data for the industrial wastewater treatment technology (IWTT) database for use in future annual reviews. EPA expects to use this database to identify whether specific industrial categories warrant further review for new or revised ELGs, based on the range of available treatment technology performance. As a specific next step, in its detailed study of petroleum refining and continued categorical review of metal finishing, EPA plans to use the data it has collected regarding the performance of treatment technologies that have been applied to treat petroleum refining and metal finishing wastewaters, respectively.
- **Continued Review of CAPs Chemicals.** EPA plans to continue its review of the Office of Pollution Prevention and Toxics (OPPT's) Chemical Action Plan (CAP) chemicals with the highest likelihood of industrial wastewater discharges. Chemicals may include Benzidine dyes, Bisphenol A (BPA), Hexabromocyclododecane (HBCD), Nonylphenol and Nonylphenol Ethoxylates, Perfluorinated Chemicals (PFCs), Phthalates, Short-Chain Chlorinated Paraffins (SCCPs), and Toluene Diamine and Methyl Diphenyl Diamine, which are hydrolysis byproducts of Toluene Diisocyanate (TDI) and Methylene Diphenyl Diisocyanate (MDI), respectively. EPA plans to work with OPPT regarding the chemicals

reviewed and available data to characterize their presence in industrial wastewater discharges.

EPA does not intend to pursue further review of Penta, Octa, and Decabromodiphenyl Ethers (PBDEs) because they are being phased out of U.S. commerce or do not have significant wastewater discharges.

- **Continued Review of Air Regulations.** EPA plans, in future annual reviews, to continue its review of industries for which air regulations may result in an unregulated wastewater discharge.
- **Continued Review of TRI Sectors Expansion.** EPA plans to review available TRI sector expansion data in future annual reviews to determine if new wastewater hazard data are available and should be considered. Selenium discharges from Phosphate Mines may be a new pollutant of concern.
- **Continued Review of Analytical Methods.** EPA identified several pesticides measured by some of the approved pesticide analytical methods that do not currently have effluent limits under the Pesticide Chemicals Manufacturing, Formulating, and Packaging ELGs (40 CFR Part 455). In future annual reviews EPA plans to evaluate whether any of the unregulated pesticides have active ingredients that are manufactured in the U.S. and if they are present in industrial wastewater discharges.

EPA is requesting public comment and input on these actions and next steps related to specific industries or targeted pollutants and solicits any available data and information the public and stakeholders may have to help inform these actions.

6.3 Additional Actions for the 2014 Annual Review

In the Final 2010 Effluent Limitations Guidelines (ELG) Plan (76 FR 66286), EPA solicited data and information from the public and all interested stakeholders on wastewater discharges of nanosilver. In response to the solicitation, EPA received comments supporting an EPA investigation into the potential environmental and human health risks from wastewater discharges of nanosilver as well as other nanomaterials. However, commenters provided little or no data or information regarding such potential risks.

As a part of its 2014 Annual Review of industrial wastewater discharges, EPA will report on a methodology and interim findings of its investigation into the environmental toxicity and industrial wastewater discharge of nanomaterials. In support of that investigation, EPA requests public comment and stakeholder input relative to any information or data available on the wastewater hazards and discharges associated with the manufacture of nanomaterials and their use in manufacturing or formulating other products.

7. SUMMARY TABLE OF FINDINGS FOR EXISTING GUIDELINE CATEGORIES FROM THE 2011, 2012 AND 2013 ANNUAL REVIEWS

Table 7-1 summarizes the findings from EPA's 2011, 2012 and 2013 Annual Reviews of existing point source categories. EPA uses the following codes to describe its findings and potential next steps for each industrial category:

1. Effluent guidelines or pretreatment standards for this industrial category were recently promulgated or revised through an effluent guidelines rulemaking, or a rulemaking is currently underway. Or, EPA recently completed a preliminary study or a detailed study, and no further action is warranted at this time.
2. Revising the national effluent guidelines or pretreatment standards is not the best tool to control toxic and non-conventional pollutant discharges because most discharges result from one or a few facilities in this industrial category. EPA will consider assisting permitting authorities in identifying pollution-control and pollution-prevention technologies for the development of technology-based effluent limitations during the development of individual permits.
3. Not identified as a priority based on data available at this time because (1) the category was not among industries that cumulatively compose 95% of discharges as measured in units of TWPE in the 2011 and 2013 Annual Reviews, (2) EPA did not identify during the 2011 and/or 2013 preliminary category reviews that revisions to the national effluent guidelines or pretreatment standards are warranted, or (3) EPA did not identify during the 2012 Annual Review that revisions to the national effluent guidelines or pretreatment standards are warranted.
4. EPA intends to start, or continue to conduct, a preliminary category review of the pollutant discharges from this category.
5. EPA intends to start or continue either an in-depth category study of this industry in its 2014 Annual Reviews to determine whether to identify the category for effluent guidelines rulemaking.
6. EPA is identifying this industry for a potential revision of an existing effluent guideline.

Table 7-1. Summary of Findings from EPA's 2011, 2012 and 2013 Annual Reviews of Existing Industrial Categories

No.	Industry Category (listed alphabetically)	40 CFR Part	Findings
1	Airport Deicing	449	(1)
2	Aluminum Forming	467	(3)
3	Asbestos Manufacturing	427	(3)
4	Battery Manufacturing	461	(3)
5	Canned and Preserved Fruits and Vegetable Processing	407	(3)
6	Canned and Preserved Seafood Processing	408	(3)
7	Carbon Black Manufacturing	458	(3)
8	Cement Manufacturing	411	(3)

Table 7-1. Summary of Findings from EPA's 2011, 2012 and 2013 Annual Reviews of Existing Industrial Categories

No.	Industry Category (listed alphabetically)	40 CFR Part	Findings
9	Centralized Waste Treatment	437	(5)
10	Coal Mining	434	(3)
11	Coil Coating	465	(3)
12	Concentrated Animal Feeding Operations (CAFO)	412	(1)
13	Concentrated Aquatic Animal Production	451	(3)
14	Construction and Development	450	(1)
15	Copper Forming	468	(3)
16	Dairy Products Processing	405	(3)
17	Electrical and Electronic Components	469	(3)
18	Electroplating	413	(4)
19	Explosives Manufacturing	457	(3)
20	Ferroalloy Manufacturing	424	(3)
21	Fertilizer Manufacturing	418	(3)
22	Glass Manufacturing	426	(3)
23	Grain Mills	406	(3)
24	Gum and Wood Chemicals	454	(3)
25	Hospitals	460	(1)
26	Ink Formulating	447	(3)
27	Inorganic Chemicals[a]	415	(1) and (3)
28	Iron and Steel Manufacturing	420	(3)
29	Landfills	445	(3)
30	Leather Tanning and Finishing	425	(3)
31	Meat and Poultry Products	432	(3)
32	Metal Finishing	433	(4)
33	Metal Molding and Casting	464	(3)
34	Metal Products and Machinery	438	(3)
35	Mineral Mining and Processing	436	(3)
36	Nonferrous Metals Forming and Metal Powders	471	(3)
37	Nonferrous Metals Manufacturing	421	(2)
38	Oil and Gas Extraction[b]	435	(1) and (3)
39	Ore Mining and Dressing	440	(2)
40	Organic Chemicals, Plastics, and Synthetic Fibers[a]	414	(1), (2), and (3)
41	Paint Formulating	446	(3)
42	Paving and Roofing Materials (Tars and Asphalt)	443	(3)
43	Pesticide Chemicals	455	(3)
44	Petroleum Refining	419	(5)
45	Pharmaceutical Manufacturing	439	(3)
46	Phosphate Manufacturing	422	(3)

Table 7-1. Summary of Findings from EPA's 2011, 2012 and 2013 Annual Reviews of Existing Industrial Categories

No.	Industry Category (listed alphabetically)	40 CFR Part	Findings
47	Photographic	459	(3)
48	Plastic Molding and Forming	463	(3)
49	Porcelain Enameling	466	(3)
50	Pulp, Paper, and Paperboard	430	(3)
51	Rubber Manufacturing	428	(3)
52	Soaps and Detergents Manufacturing	417	(3)
53	Steam Electric Power Generating	423	(1)
54	Sugar Processing	409	(3)
55	Textile Mills	410	(2)
56	Timber Products Processing	429	(3)
57	Transportation Equipment Cleaning	442	(3)
58	Waste Combustors	444	(3)

[a] Codes ("(1") and "(3)") are used for this category. The first code ("(1)") refers to the recent effluent guidelines rulemaking, and subsequent delisting for the Chlorinated and Chlorinated Hydrocarbons (CCH) manufacturing sector, which includes facilities currently regulated by the OCPSF and Inorganic Chemicals effluent guidelines. The second code ("(3)") indicates that the remainder of the facilities in these two categories do not represent a hazard priority at this time.

[b] Codes ("(1)" and "(3)") are used for this category. The first code ("(1)") refers to the ongoing effluent guidelines rulemaking for shale gas extraction and EPA's review of the coalbed methane extraction sector of the industry. The second code ("(3)") refers to category discharges of the oil and gas extraction industry, excluding coalbed methane and shale gas extraction, that do not represent a hazard priority at this time.

PART IV: REFERENCES FOR FINAL 2012 AND PRELIMINARY 2014 EFFLUENT GUIDELINES PROGRAM PLANS

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